My Today's Paper CS502 Fall 2012 Mid-term
What is the effect of MaxHeapify (A,i) when i>heapsize [A]/2?
Draw binary tree of Matrix ((A1(A2,A3))(A4,A5))?
What is heap and heap order?
Define heap sort algorithm?
How edit distance is used for correct spelling?
What are the Total numbers of edit distance in Matrix?

What are the two steps generally involved while developing dynamic programming algorithm. (2)
How we build heap? (2)
What are the applications of edit distance technique? Name any three (3)
Solve: $T(n) = (T(q-1) + T(2-q) + 2)$ (3)
What is the worst case running time for the bucket sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time $\Theta(n \log n)$ (5)
Given an unordered list of n x0, x1, x2, …, xn and elements is common, if there are atleast n/5 copies of it.We want to identify all the common numbers in our list. Give O(n log n) to solve the problem. (5)

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(1)what is the average case and worst case running time of quick sort? [2 marks]

(6)write pseudo code for 0/1 Knapsack algorithm using dynamic programming[5 marks]

Q – Write Down the steps of Dynamic programming
write any 3 types of edit distance 3 marks
what is speech recognization ? 3 marks
What is the effect of MaxHeapify (A,i) when i>heapsize [A]/2? 5 marks

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My todays paper of cs 502
20 mcqs, half from past papers and half were new.
Draw a max heap. 10 values are given.
Similarity and difference b/w dynamic programming and divide and conqure.
Total number of entries in matrix for edit distance.
What is the essential constraints of counting sort?

WHAT IS the necessary assumption for average case anaylsis quick sort
what are total no. of entries in matrix for edit distance
carry out only first pass of radix sort on the following 4 digits numbers in order to sort them in ascending order
1246 9870 2333 583
6 subjective , 50% subjective/objective

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cs502: Current Midterm paper

My paper was as follows:
Mcqs boht ajeeb thy. only 4 were 4rm past papers remaining all were new.Infact all my paper was new.There was no question 4rm past papers. Anyhow, m telling u my paper:
Q #1: Write Essential constraint of Counting sort. (2 marks)

Q #2: Write running time for edit distance Algo... (2 marks)
Q # 3:Equ.. was given (form page # 51 of handouts) and the question was to solve it ?(3 marks)
Q # 4: A statement was given 4rm chain matliplication matrix and the question was explain that it is ture or not? (3 marks)
Q # 5: Write pesudo code for 1/0 knapsack? (5 marks)
Q # 6: A table was given and the question was sort the velues after 1st and 2nd half using Radix sort? (5 marks)

Q # 1: how we heapify ?? 2 marks
Q #2: Write running time for edit distance Algo... (2 marks)
Q # 3: tell the one similarity and 2 difference b/w divide and conquer strategy ?? 3marks
Q# 4:this statemnent is true or false: IN knapsack problem the rows are in non decreasing order . brefily explain ? 3marks
Q # 5: write the pseudo code of memofib ? 5marks
Q # 6: What is the timing complexity of this code? 5 marks

```
KNAPSACK(n, W)
1 for w=0, W
2 doV[0, w] ←0
3 for i=0, n
4 doV[i, 0] ←0
5 for w=0, W
6 do if(wi ≤w&v
i+V[ i−1, w−wi
] > V[i−1, w])
7 thenV[i, w] ←v
i+V[ i−1, w−wi
]
8 else V[i, w] ←V[i−1, w]
```

Zyada tar paper quiz aur past papers main say tha.
Maray Aaj kay exam kay short questions (with answers)
2 new MCQs thy asymptotic growth kay baray main thy
what is asymptotic growth of given formula
Q: What is heap and what is heap order? (Mark2)
Answer:-
The heap is the section of computer memory where all the variables created or initialized at runtime are stored. The heap order property: in a (min) heap, The order of keys decends from the root. In a (max) heap, the order descends from the root key. Ref: Handouts Page no. 40
Q: Draw the cost table for chain multiplication problem with initial states(Mark3)
Answer:-
(A1)(A2A3A4 . . .An)
or (A1A2)(A3A4 . . .An)
or (A1A2A3)(A4 . . .An)
. . . . . .
or (A1A2A3A4 . . .An−1)(An)
Ref: Handouts Page no. 90
Q: Define heap sort algorithm?
Answer:-
We build a max heap out of the given array of numbers A[1..n]. We repeatedly extract the maximum item from the heap. Once the max item is removed, we are left with a hole at the root. To fix this, we will replace it with the last leaf in tree. But now the heap order will very likely be destroyed. We will apply a heapify procedure to the root to restore the heap.

Q: What are the applications of edit distance technique? Name any three (3)
Answer:-
Spelling Correction
Plagiarism Detection
Computational Molecular Biology
Ref: Handouts Page no. 76

1 aur question tha formula ko expand karnay ka

AS_SALAAM_O_ALAIKUM Everyone....

Objective questions almost past paper se aye thy....

Subjective questions:

Q1. How does bubble sort algorithm works? (Marks 2)

Q2. What are total numbers of entries in matrix for edit distance? (Marks 2)

Q3. How edit distance is used in spelling correction? (Marks 3)

Q4. Describe heap sort algorithm works? (Marks 3)

Q5. Suggest & describe modifications of the implementation of "Quicksort" that will improve its performance? (Marks 5)

Q6. Consider the case of 3 matrix: B1 is 8*5, B2 is 5*7 & B3 is 7*5. if the multiplication can be carried out in there ways then which one is better? justify your answer with proper calculations.
(1) (B1(B2B3))
(2) ((B1B2)B3) (Marks 5)

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my Today's paper CS502
Q Quick sort such that sort the array in to non-increasing order?
Q we can avoid unnecessary repetitions for recursive calls?
Q-Write a pseudo code Fibonacci With memorization? -- (3)
Spelling correction in edit distance? 3 marks
Bubble sort?
What is the worst case running time for the Quick sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time $\Theta(n \log n)$

My Today's paper:
Total Q are 26
mostly quizes are from past papers
From Moaz n Tariq hanif Files
subjective:
1: Draw a binary tree for this order of matrix multiplication.(A1(A2A3))(A4A5)
2: How we maintain Heap property?

3:How to construct an optimal solution for o/1 knapsack problem?
4:How can we avoid exponential running time of o/1 knapsack problem using dynamic programming?
5: Illustrate how radix works on the folloing words:
COW,DOG,SEA,RUG,ROW,MOB,BOX,TAB

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todays cs502 paper
Mcs mostly from past papers and further from starting and subj was more from end part
Define worst case and average case of Quick sort? 2mrks
Speech Recognition in edit distance?2mrks
show that in max heap every node has greator then to its sub nodes?
a statement was given to selcect true or false and give reason for that about knapsack ?3mrks
page no 50 pe jo equation hai quick sort algorithm ki recursion wali wo aya tha 5 marks q us me n=2 dia gya tha? 5mrks
In general dynamic programming to knapsack more then once is traha ka 1 question tha 5 marks? 5mrks
best of luck to all of u...

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my today paper of cs502
quiz zyada past paper s thy moaaz file m s thy
1: working of bubble sort .....2 mrks
2: what are the entries of matrix of edit distance.....3
3: sapling correction kesy krty hn.....3 mrks
4: what are the worst case running time of bucket sort.what change makes to make a worst case of running time theta(nlogn).....5 mrks
5: pesudo code of dynamic programming approach of 0/1 knapsack.

MCQ QUESTION MOSTLY FROM HANDOUT
GIVEN ARRAY AND MAKE MAX-TREE 5 MARKS
QUICK,HEAP,COUNTING,MERG KA TABLE KA JIS ME STABLE OR IN-PLACE BTANEY THE 5 MARKS
ADIT DISTANCE KI 3 APPLICATION K NAME BTANEY THE 3 MARKS
MEMOIZATION KI DIFINATION THI 2 MARKS
WORS CASE OR AVERAGE CASE DEFINE KRNE THE 2 MARKS
EK 3 NUMBER WALA QUESTION THA US KA YAD NHE.

Today's paper CS502
Q Quick sort such that sort the array in to non-increasing order?
Q we can avoid unnecessary repetitions for recursive calls?
Q-Write a pseudo code Fibonacci With memorization? -- (3)
Spelling correction in edit distance? 3 marks
Bubble sort?
What is the worst case running time for the Quick sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time Θ(n log n)

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please give answer these questions.
Write Essential constraint of Counting sort.
What are total numbers of entries in matrix for edit distance?
WHAT IS the necessary assumption for average case analysis quick sort?
Suggest & describe modifications of the implementation of "Quick sort" that will improve its performance?

My today paper of cs502

Question no 1: What is heap and heap order (2 marks)
Question no 2: what is chain matrix multiplication(2 marks)
Question no 3:common and diffirence between divide conquer and dynamic (3 marks)
Question no 4: Suggest and describe modification of implitation of Quick sort that will improve its performance(3 marks)
Question no 5: Table was given and it was required to mark "?" at initial states of matrix multiplication(5 marks)
Question no 6: Draw binary tree of matrix multliplication (A1(A2A3))(A4A5)) (marks 5**)**

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20 MCQs form moaaz and tariq hanif files.
6 Q/A
1) How do we build heap? (2 marks)
2) What are two techniques used in developing dynamic programming algorithm? (2 marks)
3) If you are given an array of integer numbers and you are told to find median then which sorting techniques you would use for complexity O(n log n) and O(n)? (3 marks)
4) Edit distance in spelling correction? (3 marks)
5) Complexity of quick sort was given and we had to find the outcome of the recurrence in terms of asymptotic growth? (5 marks)
6) If there are 3 matrices 8 by 5 , 5 by 7, 7 by 5 then which order of the multiplication is preferred . Justify your answer. (5 marks)
i) (B1 (B2 B3))
ii) ((B1 B2) B3)

MCQ QUESTION MOSTLY FROM HANDOUT
GIVEN ARRAY AND MAKE MAX-TREE 5 MARKS
QUICK,HEAP,COUNTING,MERG KA TABLE KA JIS ME STABLE OR IN-PLACE BTANEY THE 5 MARKS
ADIT DISTANCE KI 3 APPLICATION K NAME BTANEY THE 3 MARKS
MEMOIZATION KI DIFINATION THI 2 MARKS
WORS CASE OR AVERAGE CASE DEFINE KRNE THE 2 MARKS
EK 3 NUMBER WALA QUESTION THA US KA YAD NHE.

Today's paper CS502
Q Quick sort such that sort the array in to non-increasing order?
Q we can avoid unnecessary repetitions for recursive calls?
Q-Write a pseudo code Fibonacci With memorization? -- (3)
Spelling correction in edit distance? 3 marks
Bubble sort?
What is the worst case running time for the Quick sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time Θ(n log n)

My today paper of CS 502 dated 25 May 2013

There are Total 26 Questions 20 MCQs and 6 Subjective questions. Mostly MCQs are from this file

CS502 Solved MCQS Midterm.pdf or from past papers and Subjective questions are:
Q1 : How we Heapify?
Q2 : Describe Heap sort algorithm?
Q3 : How many elements are in matrix of edit distance?
Q4 : Cost table was given with initial states and we have to find the next iteration after initial state and we have to mark it with "?" mark

0

0

0

Some above kind of table was given.

Q5 : Three matrix are given A1=5 x 4 , A2= 4 x 6, A3= 6x2 (Sorry values mujay yaad nai) we have to asked that which one is the better in performance wise justify your answer
1) A1(A2A3)
2) (A1A2)(A3)
Sorry sahih yaad nai yah wala question magar kuch istarah ka tha
Q6 : suggest and describe one modification of implementing quick sort? 5marks

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CS502 Midterm Paper Current May 2013
Today was my first paper of CS 507, Details are as total 26 questions out of them 20 were objectives , multiple choice, no t/f, then 6 subjective question ranging 2-5 marks. MCqs were from past papers
1. software development is considered as on going process.
2.AIS to be linked with other info systems.
3.ADV/Dis adv of waterfall development model.
4.DSS can be extended to group DSS.
5.DSCL help in establishing information system, question regarding an automobile company wants outlets in Lahore, Islamabad and Karachi, and wants to have information system, how DSCL help in
6.Identify and explain two of Computer aided techniques.

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todays paper total questions 26, 20 mcqs all from past papers, 6 subjective questions
advantages and disadvantages of waterfall method (3 marks)
software development is an ongoing process comment (2 marks)
characteristics of structured decisions (2 marks)
a case was given and model of decision making was to be identified (5 marks)
characteristics of inventory subsystem (3 marks)
type of system to be used in decision making when managers are at different geographical locations and cannot get together, characteristics of the system (5 marks)
best of luck, pray for me as well, regards

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1. Differentiate between structure and unstructured .
2. Types of Organizational Structure
3. Defines the logical and physical model in system design?

My today paper of CS 502 dated 25 May 2013

There are Total 26 Questions 20 MCQs and 6 Subjective questions. Mostly MCQs are from this file
CS502 Solved MCQS Midterm.pdf or from past papers and Subjective questions are:
Q1 : How we Heapify?
Q2 : Describe Heap sort algorithm?
Q3 : How many elements are in matrix of edit distance?
Q4 : Cost table was given with initial states and we have to find the next iteration after initial state and we have to mark it with "?" mark

0

0

0

Some above kind of table was given.

Q5 : Three matrix are given A1=5 x 4 , A2= 4 x 6, A3= 6x2 (Sorry values mujay yaad nai) we have to asked that which one is the better in performance wise justify your answer
1) A1(A2A3)
2) (A1A2)(A3)
Sorry sahih yaad nai yah wala question magar kuch istarah ka tha
Q6 : suggest and describe one modification of implementing quick sort? 5marks

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MCQs 80% new.. only 2 from file..
Subjective.
Edit Distance in Speech Recognition
What is sorting? describe slow running sorting algorithms. 5 marks
3 matrix given with their order. 2 multiplication orders were given.. calculate and tell which order of multiplication is better. 5 marks
Catalan Numbers and their formula 3 marks
one array given.. apply quick sort for one iteration and reason your answer.. 3 marks
one question of marks 2 forgotten..

MCQ was from whole 1 - 20 almost . which seems difficult , that were from mathmaticle analysis (5 - 6 were of that type)
Q1.Heap Sort , Counting Sort , Quick Sort ,Merge Sort , in ,table ,And required to tell , which is inplace Algorithm and stable ? Marks 5
Q2 . Suggest that , how can make better improvement in Quick Sort algorithm .Marks 5
Q3. Consider three numbers with comparison based sortig algorithim and write possible combination in a1,a2,a3 .Marks 3
Q4. What is better aproach of multiplication rather than straight form of Multiplication . Named that . Marks 3
Q5. ((A3A2)A1 . Question was of this type . but input change from handout .(Marks 2)
Q6.worst case and average case algorithim of Quick Sort .Marks 2

1.worst case of bucket algorithm
radix matrix ka aik step apply kerna tha given table pe.5 marks
Catlan numbers and formula 3 marks.
maximum haep mn se tha.3
speech reorganization.2
worst and average case of quick sort algorithm.2 marks

CS502 – Mid Term Paper Dated: 29-05-2013
Objective Type:

1. Heap sort is:
2. Edit distance belong to:
3. In Random Access Machine, instructions are executed _____
4. When this relation is true ? f(n) = O(f(n)2)
5. Dynamic Programming algorithm:
6. For the Sieve technique we take time
7. For the heap sort, access to nodes involves simple _____ operations.
8. Comparison based sorting algorithm cannot run faster than ____
9. In quick sort algorithm, constants hidden in thetha(nlogn) are ___
10. Counting sort assumes that the numbers to be sorted are in the range ____
11. Fibonacci sequence was posted by _____
12. We can find the product A × B of matrices A and B, only if they are compatible, which means: ---

Subjective Questions:

1. What are the worst and average run times of quick sort? (2 marks)
2. What are total numbers of entries in matrix for edit distance? (2 marks)
3. What change is required in QUICK SORT such that it sorts array into non-increasing order? (3 marks)
4. a. What does dynamic programming have in common with divide and conquer? (1 mark)
   b. What is the principal difference between two techniques ? (2 marks)
5. Show that the running time of quick sort when the array A contains distinct elements and sorted in decreasing order ? (5 marks)
6. Illustrate how Radix Sort works on the following words: Show the result of first 2 passes only.

COW, DOW, SEA, RUG, ROW, MOB, BOX, TAB, BAR, EAR, TAR, DIG, BIG, TEA, NOW, FOX

AsalamuAlaikum,
I had cs502 exam. Just a few mcqs were from past/moaz file. Mostly mcqs and subjective were new.
Shorts:
1. How bubble sort algorithm works?
2. Total number of entries in matrix?
3. How Spelling check is applied?
4. What are the two techniques you can use to .... medians something :p?
I guess it was Sieve technique and sorting.

Some MCQs I remember:
1. Heap sorting is: **in place and not stable**
2. Problem having optimal solution with its subproblems, such a problem is having:**Optimal structure**
3. Big theta notation is used for: **both upper and lower bound**
4. Dynamic programming uses: **Divide and conquer**
5. Chain order matrix is _____ than exponential method... : **More efficient**
6. Sieve Technique applies to problems where we are interested in finding a single item from a larger set of _____ : **n items**
7. The word Algorithm comes from the name of the muslim author: **Abu Ja'far Mohammad ibn Musa al-Khowarizmi**

Many questions were from aysmptotic notation. Please everyone, read the handouts. This time they might be having new questions as they know we all study past papers.

My today paper 19-12-2015
Students paper was so eassy 60% mcqs were from previous papers
1 solve the Radix sort upto 2 phases(a list of numbers was given) 5marks
2. which way cab be used to multiply matrices so that minimum no. of multiplication will be required 1 (A(BC)) 2. (AB(C))
A,B and C matrices k orders b given thy 5 marks
3. Radix sort`s 1 more question (upto only 1 phase) was given for 3 marks
4 worst case and average case for quick sort 2marka
5. how edit distac used in spell correction 3marks
6. how edit distance is used in speech recognition 2marks

Today paper CS502 2015
#CS502 Today #Current Midterm Paper
Students paper was so easy 60% mcqs were from previous papers
1 solve the Radix sort upto 2 phases(a list of numbers was given) 5marks
2. which way cab be used to multiply matrices so that minimum no. of multiplication will be required 1 (A(BC)) 2. (AB©)
A,B and C matrices k orders b given thy 5 marks
3. Radix sort`s 1 more question (upto only 1 phase) was given for 3 marks
4 worst case and average case for quick sort 2marka
5. how edit distac used in spell correction 3marks
6. how edit distance is used in speech recognition 2marks

Aoa
50% MSQS from moaz paper and 50% from handouts(or some new mcqs) .
lonq question some from past.these are
1.worst case and average casee of quick sort.(5)
2.edit distance of math and arts 2
3.aur aek swal thaa js me kuch numbers thee inhe sequence me lkna thaa aur in ki binry tree bnana thaa .
4.ek statement de hoi thee aur ye btana tha k ye true ha ya false aue ise explain krna thaa 5
baki question muji yad nahe sory

Correct Solution to these Questions are in attached file:
Q: What change is required in QUICK SORT such that it sorts array into non-increasing order? (3 marks)
Q: a. What does dynamic programming have in common with divide and conquer? (1 mark)
b. What is the principal difference between two techniques ? (2 marks)
a. Both techniques are based on dividing a problem's instance into smaller
instances of the same problem.
Q: Show that the running time of quick sort when the array A contains distinct elements and sorted in decreasing order ?

Today's paper CS502
Q Quick sort such that sort the array in to non-increasing order?
Q we can avoid unnecessary repetitions for recursive calls?
Q-Write a pseudo code Fibonacci With memorization? -- (3)
Spelling correction in edit distance? 3 marks
Bubble sort?
What is the worst case running time for the Quick sort? What simple change is

required in the algorithm to preserve its linear expected running time and makes it worst case time Θ(n log n)

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my today cs502 paper
60% MSQS from moaz and Muhammad faisal dar files others from handout but essay thay.

Long questions

1.What is heap and what is heap order. 2 marks.
2.how edit distance is used in speech recognition 3 marks
3.Draw the cost table for chain multiplication problem with initial states. 3 marks
4.worst case my sy tha ik question

kuch MCQS jo mujy yaad rahy wo ye hen

1.What is the total time to heapify.
2.word Algorithm comes from the name of the muslim author……..
3.Al-Khwarizmi's work was written in a book titled ……..
4…….. is a graphical representation of an algorithm.
5.If there are Θ (n2) entries in edit distance matrix then the total running time is
6.Divide-and-conquer involves breaking the problem into a small number of .
7.Any comparison-based sorting algorithm has worst-case running time:
8.What is the solution to the recurrence T(n) = T(n/2)+n
9.A (an) _____ is a left-complete binary tree that conforms to the heap order
10..A heap is a left-complete binary tree that conforms to the**_____.**
11.In plane sweep approach, a vertical line is swept across the 2d-plane and _____structure is used for holding the maximal points lying to the left of the sweep line.

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1) Draw a binary tree for this order of matrix multiplication.(A1(A2A3))(A4A5)
2) How we maintain Heap property?
3) How to construct an optimal solution for o/1 knapsack problem?
4) How can we avoid exponential running time of o/1 knapsack problem using dynamic programming?
5) Illustrate how radix works on the following words:
COW,DOG,SEA,RUG,ROW,MOB,BOX,TAB

Q1-Q20 90% MCQS from moaz and Muhammad Faisal dar 20 Marks

Q21 .Worst case for Edit distance Algorithm? 2 Marks
Q22. What is the necessary assumption for average case analysis quick sort? 2 Marks
Q23. How spelling correction in edit distance? 3 Marks
Q24. Don't Remember.... 3 Marks
Q25. Draw a binary tree for this order of matrix multiplication.(A1(A2A3))(A4A5) 5 Marks
Q26. Solve Recurrence Relation.. 5 Marks (Quick Sort-Handout Page#51)

Assalm o Alikum
My today paper CS502
MCQs mostly from handouts
Sbjective are there:

1 Necessary assumption for average case analysis in quick sort? (2)
2 What running time in brute- force analysis? (2)
3 How edit distance is used in the Spelling Correction?(3)
4 Common and difference in Divide and conquer ? (3)

5 Effect of calling Max-Heapify(A,i) when i > heap size(A)/2? (5)
6 Aik Algorithm likhna tha (5)
Best wishes for all

My paper cs502
20 mcqs the jo k sare hi new lag rhe the,
write changes in quick sort to order the array in non decreasing order? 2 marks
how we can bulid heap? 2 marks
plagrism detection tha. 3 marks
edit distance table comnplete krna tha. 3 marks
aik array given thi os ka output show krwana tha . 5 marks
and question yad nai ha.
Best of Luck to all and kindly dua kigea ga paper clear ho jae.

Illustrate how Radix Sort works on the following words: Show the result of first 2 passes only.

COW, DOW, SEA, RUG, ROW, MOB, BOX, TAB, BAR, EAR, TAR, DIG, BIG, TEA, NOW, FOX

Ans:
We have to solve first two passes only.

Cow	**do[g]**	**d[o]g**	**[c]ow**	**COW**
Dog	**co[w]**	**c[o]w**	**[d]og**	**DOG**

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my tiday paper of cs 502
mcq 50% from past paper
q quick shor
2 on the heap shor
3 sodo code likhna tha memofib ka
edit distance in speach reginaction
clton numbers
over all easy paper
best of luck

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mere aj k paper mein bs 6, 7 MCQs past papers mein se the baki sb new the.
2 marks questions:
worst and average time for quick sort , time to present n2 elements in edit difference.
3 marks :
uses of edit distance or 1 row thi 1st iteration show krni thi quick sort ki.
5 marks:
matrix tha multiplication complete krni thi or suggestion mangi thi quick sort improve krne ki.
Mera paper to koi khas nai hua. ap sb k liye best of luck

Todays exam 29/12/2015 10:30am
26 total questions 20 mcq and 6 Subjective.
MCQs almost 7 from past, others were new.

Subjective were:
1. How can we avoid unnecessary repetitions for recursive calls?
2. Consider the case of 3 matrices: A1 is 5 × 4, A2 is 4 × 6 and A3 is 6 × 2. If the multiplication can be carried out this way ((A1A2) A3) then find out the cost.
3. Carry out only first pass of radix sort on the following 4-digit numbers in order to sort them in ascending order.

1246 9870 2335 5843 9762

How many total passes are needed to get the numbers sorted?
4. True or false: A sequence of values in a column of the dynamic programming table for an instance of the knapsack problem is always non-decreasing? Give a brief description..
5. Run the Radix sort on the following array of integers, show the result of first two passes only:

48081, 97342, 90287, 90583, 53202, 65215, 78397, 48001, 00972, 65315, 41983, 90283, 81664, 38107
6. Write down the steps of dynamic programming strategy.

CS502 Midterm Solved paper 31 may 2013
Todays Paper
Total Questions #26
MCQs#20
Subjective Questions#6

Q. Better appropriate to cope with chain matrix multiplication. Marks 2
Answer: page 85
Better appropriate to cope with chain matrix multiplication is to do its Dynamic Programming formulation. It is breaking up the problem into sub problems, solving and string and then combining solutions to those sub problems to solve the global problem.

Q. Consider three numbers with comparison based sortig algorithim and write possible combination in a1, a2, a3 .Marks 2
Answer: page 54
3! = 6 combinations
(a1, a2, a3), (a1, a3, a2) , (a3, a2, a1)
(a3, a1, a2), (a2, a1, a3) , (a2, a3, a1)

Q. Show that in any subtree of a max-heap the root of the subtree contains the largest value occurring anywhere in that subtree? Marks 3
Answer: http://i-write-what-i-study.blogspot.com/2013/03/61-heaps.html
Let the root of the sub-tree be at some position a[i] in the array. From the max-heap property, A[i] >= A[j=2i], if node i has a left-child and A[i] >= A[k=2*i + 1], if node i has a right-sub-tree. But, A[j] >= A[2j], if node j has a left-child and A[j] >= A[2*j + 1], if node j has a right-sub-tree. Likewise, A[k] >= A[2k+1)], if node k has a left-child and A[k] >= A[2*k +1], if node k has a right-sub-tree. The argument continues for all children in the sub-tree. Hence A[i], the root of the sub-tree, is larger than the value of any child in the sub-tree, so it contains the largest value in the sub-tree

Q. How Radix Sort works on the following digits. Show the result of first pass only. Marks 3
Answer: page 71

576	49[4]	9[5]4	[1]76	176
494	19[4]	5[7]6	[1]94	194
194	95[4]	1[7]6	[2]78	278
296 =>	57[6]	=> 2[7]8	=> [2]96	=> 296
278	29[6]	4[9]4	[4]94	494
176	17[6]	1[9]4	[5]76	576
954	27[8]	2[9]6	[9]54	954

Q. Suggest & describe modifications of the implementation of "Quick sort" that will improve its performance? Marks 5
Answer: page 49 to 51

Q. Fib() is a function then show the tree of recursion for the call fib(8)? Marks 5
Answer: page 74

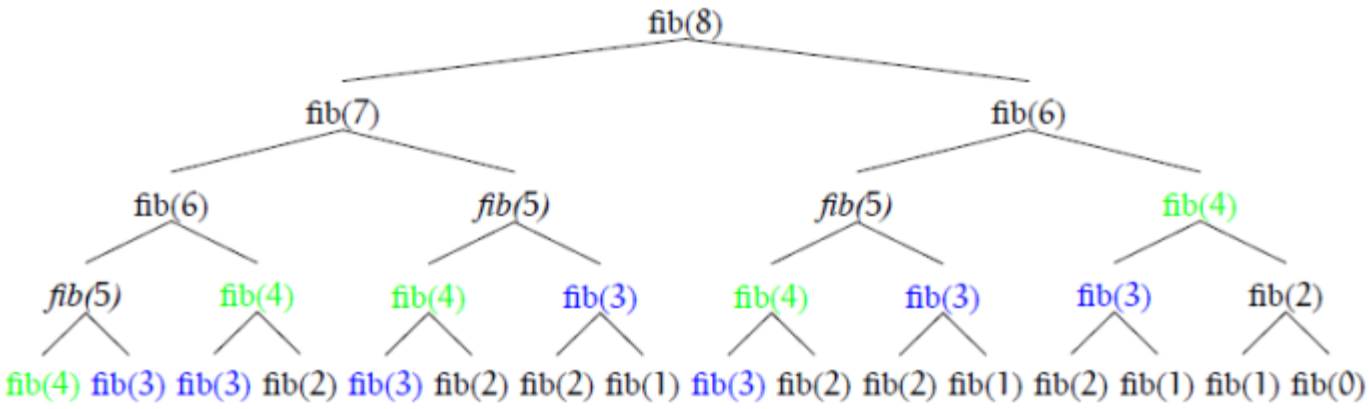

Figure 6.1: Recursive calls during computation of Fibonacci number

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By Aaniqa Jabeen
Asalam o alaikum members
My today (13-01-2015) Fundamentals of Algorithms (CS502) mid term paper
mostly Objective was from moaz past papers
Subjective:
1: three numbers a1, a2, a3.find comparison-based sorting algorithms. then find all possible combination?? (2 markx)
answer is on pg# 54 in handouts
2: what is catalan number and its formula? (2 markx)
answer is in moaz subjective file
3: 3 statments given the us ko judge kr k btna ta k kon kon c sorting apply hoti ha (3 markx)
4: yad nhe ha (3 markx)
5: One Question from Radix sort on pg#71 in handouts (5 markx)
(note) last question like this
6: draw Chain Matrix Multiplication of binary tree (A1 (A2,A3))(A4,A5)
(5 markx)
method is on page# 85
wish u best of luck
Remember me in your prayes

By Zara
CS502 Current Midterm Papers Fall 2014 - 2015 Starting from Monday, January 12, 2015
My cs502 subjective paper

what is heap an heap order?

describe heap sort algorithm?

steps of dynamic programming strategy?

What is the worst case running time for the Quick sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time Θ(n log n)?

in my CS502 mostly mcqs are from previous papers which i share now.

in subjective portion, there is no even a single code so leave it...

1.about radix method how to solve it

2.average and wrost case of quick sort

3. one question is from matrices.

CS502_Midterm paper fall 2014 (Held On Dated 16-JAN-2015)
Total Questions: 26
Objective: 20 marks
2 questions each having 2 marks
2 questions each having 3 marks
2 questions each having 5 marks
Q.21 Consider the case of 3 matrices: A1 is 5 × 4, A2 is
4 × 6 and A3 is 6 × 2 the multiplication can be carried out as ((A1A2) A3). The cost of the two is? (2 marks)
Answer: (page 84) ((A1A2)A3) = (5 • 4 • 6) + (5 • 6 • 2)= 180
Q.22 write average-case and worst-case of quick sort? (2 marks)
Answer: (page 50)
• O(n2)
• O(nlogn)
Q.23 Define heapsort Algorithm? (3 marks)
Answer: (page 41) We build a max heap out of the given array of numbers A[1..n]. We repeatedly extract the maximum item from the heap. Once the max item is removed, we are left with a hole at the root. To fix this, we will replace it with the last leaf in tree. But now the heap order will very likely be destroyed.
Q.24 True or False: A sequence of values in a column of the dynamic programming table for an instance of the knapsack problem is always non-decreasing? Give a brief description. (3 marks)
Q.25
int search(int *array, int left, int right, int key)
{
Int mid = (left + right)/2;
If (left == right;
Retrun right;
Else if (array(mid)<=key) Return search (array, mid +1, right, key) Else Return search(array, left , mid, key); Int list[4]={5, 6, 7, 8} Search(list, 0 , 4 , 8) Correctly return the index of the list element containing 8? Show your work (5 marks) Q.26 In general, how can we use the table generated by dynamic programming to tell whether there is more than one optimal subset for the Knapsack problem'sinstance. (5 marks) Out of 20 objectives almost 14 from past papers (moaaz file and rabia rauf file) Remember me in your Prayers!

My today's exam of CS502 17-01-2015
Mostly McQs was from past papers.
Effect of calling max heap (marks 2)
Write Down two steps of Dynamic programming (marks 2)
Spelling correction in edit distance? (marks 3)
identify these sorting techniques? (marks3)
(i)Scan the array. Whenever two consecutive items are found that are out of order, swap them. Repeat until all consecutive items are in order
(ii) Assume that A[1..i − 1] have already been sorted. Insert A[i] into its proper position in this sub array. Create this position by shifting all larger elements to the right.
(iii)Assume that A[1..i − 1] contain the i − 1 smallest elements in sorted order. Find the smallest element in A[i..n] Swap it with A[i]
Given an unordered list of n x0, x1, x2, …, xn and elements is common, if there are atleast n/5 copies of it.We want to identify all the common numbers in our list. Give O(n log n) to solve the problem. (marks 5)
Given a sequence A1,A2, . . . ,An and dimensions p0, p1, . . . , pn where Ai is of dimension pi−1 × pi, determine the order of multiplication that minimizes the number of operations. (marks 5)
identify these sorting techniques? (marks3)
(i)Scan the array. Whenever two consecutive items are found that are out of order, swap them. Repeat until all consecutive items are in order
(ii) Assume that A[1..i − 1] have already been sorted. Insert A[i] into its proper position in this sub array. Create this position by shifting all larger elements to the right.
(iii)Assume that A[1..i − 1] contain the i − 1 smallest elements in sorted order. Find the smallest element in A[i..n] Swap it with A[i]

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my recent paper of cs502 :
20 mcqs
subjective :
Question 21:
How do bubble sort algorith works?
Question 22:
which one is better aproch to cop with chain matrix multiplication ?
Question 23:
show that any subtree of a Max Heap the root of the subtree contains the largest value occur in any subtree.
Question 24:
supose we want to multiply series of matrices which technique called and which one is better approch rather then straight forward multiplication ?
Question 25:
Carry out radix sort to on the following 3 digit number in order to sort them in ascending order:
113,114,243,871,445,778
show result of 2 passes only?
Question 26:
Decribe solution path FOR edit distance
1 Maths
2 Arts
BEST OF LUCK ALL OF U

Today Paper at 2:30 PM.
12 Mcqs from past and quizzes, 8 from lectures.

1). Two steps of dynamic programming? (2)
2). How do we maintain heap property? (2)

3). We use selection algorithm to find the median of xxxx. What will be the affect on complexity of Quick Sort Algorithm? (3)
4). How can we find optimization of 0/1 Knapsack? (3)
5). Generate a binary tree for the matrices [(A1(A2A3)(A4A5))]? (5)
6). One question on Radix Sort? (5)

Currnet Mid Term Papers of CS502 Fundamentals of Algorithms Spring 2015(All in one Discussion)
Today, 05:20 PM

MIDTERM EXAMINATION
2015
CS502- Fundamentals of Algorithms
Time: 60 min
Marks: 38

Question No: 1 (Marks: 1) - Please choose one
Random access machine or RAM is a/an
► Machine build by Al-Khwarizmi
► Mechanical machine
► Electronics machine
► **Mathematical model**

Question No: 2 (Marks: 1) - Please choose one
_____ is a graphical representation of an algorithm
notation
► tation
► **Flowchart**
► Asymptotic notation

Question No: 3 (Marks: 1) - Please choose one
A RAM is an idealized machine with _____ random-access memory.
► 256MB
► 512MB
► **an infinitely large**
► 100GB

Question No: 4 (Marks: 1) - Please choose one
What type of instructions Random Access Machine (RAM) can execute? Choose best answer
► Algebraic and logic
► Geometric and arithmetic
► **Arithmetic and logic**
► Parallel and recursive

Question No: 5 (Marks: 1) - Please choose one
What will be the total number of max comparisons if we run brute-force maxima algorithm with n elements?
►

Question No: 6 (Marks: 1) - Please choose one
What is the solution to the recurrence $T(n) = T(n/2)+n$.

► $O(\log n)$
► **$O(n)$**
► $O(n \log n)$
► $O(n^2)$

Question No: 7 (Marks: 1) - Please choose one
Consider the following code:
For(j=1; j<n;j++)
For(k=1; k<15;k++)
For(l=5; l<n; l++)
{
Do_something_constant();
}
What is the order of execution for this code.
► **O(n)**
► $O(n^3)$
► $O(n^2 \log n)$
► $O(n^2)$

Question No: 8 (Marks: 1) - Please choose one
Consider the following Algorithm:
Factorial (n){
if (n=1)
return 1
else
return (n * Factorial(n-1))

}
Recurrence for the following algorithm is:
► T(n) = T(n-1) +1
► T(n) = nT(n-1) +1
► T(n)= T(n-1) +n
► **T(n)=T(n(n-1)) +1**

Question No: 9 (Marks: 1) - Please choose one
What is the total time to heapify?
► **O(log n)**
► O(n log n)
► $O(n^2 \log n)$
► $O(\log^2 n)$

Question No: 10 (Marks: 1) - Please choose one
When we call heapify then at each level the comparison performed takes time
► **It will take Θ (1)**
► Time will vary according to the nature of input data
► It can not be predicted
► It will take Θ (log n)

Question No: 11 (Marks: 1) - Please choose one
In Quick sort, we don't have the control over the sizes of recursive calls
► **True**
► False
► Less information to decide
► Either true or false

Question No: 12 (Marks: 1) - Please choose one
Is it possible to sort without making comparisons?
► **Yes**
► No

Question No: 13 (Marks: 1) - Please choose one
If there are $\Theta(n^2)$ entries in edit distance matrix then the total running time is
► $\Theta(1)$
► **$\Theta(n^2)$**
► $\Theta(n)$
► $\Theta(n \log n)$

Question No: 14 (Marks: 1) - Please choose one
For Chain Matrix Multiplication we can not use divide and conquer approach because,
► We do not know the optimum k
► **We use divide and conquer for sorting only**
► We can easily perform it in linear time
► Size of data is not given

Question No: 15 (Marks: 1) - Please choose one
The Knapsack problem belongs to the domain of _____ problems.
► **Optimization**
► NP Complete
► Linear Solution
► Sorting

Question No: 16 (Marks: 1) - Please choose one
Suppose we have three items as shown in the following table, and suppose the capacity of the knapsack is 50 i.e. W = 50.

Item	Value	Weight
1	60	10
2	100	20
3	120	30

The optimal solution is to pick
► Items 1 and 2
► Items 1 and 3
► **Items 2 and 3**
► None of these

Question No: 17 (Marks: 2)
Describe an efficient algorithm to find the ***median*** of a set of 10^6 integers; it is known that there are fewer than 100 distinct integers in the set

Question No: 18 (Marks: 2)
How we can avoid unnecessary repetitions for recursive calls?

Question No: 19 (Marks: 2)
Draw the cost table for chain matrix multiplication problem with initial state.

Question No: 20 (Marks: 3)
Solve it,

Question No: 21 (Marks: 3)
What are Catalan numbers? Give the formula.

Question No: 22 (Marks: 5)

Question No: 23 (Marks: 5)
Write the pseudo code for 0/1 knapsack algorithm developed using dynamic programming technique.

MY TODAY'S PAPER
CS502
DATED 13-1-15

- 70% mcqs were from moaaz file

Subjective

1. Consider the case of three matrices. A1 is 5x4, A2 is 4x6 and A3 is 6x2. If multiplication ((A1 A2)A3) is carried out, find its cost.
2. Describe worst case and average run time. (2 marks)
3. In quick sort, which step of divide and conquer is not explicit and which has main processing.
4. Cost table for chain matrices was given. Which cells are to be filled after first iteration? Specify those cells with question mark (i.e ?). (3 marks)
5. Write pseudo code Fibonacci sequence with memoization algorithm. (5 marks)
6. Write pseudo code for 0/1 knap sack algorithm developed using dynamic programming techniques. (5 marks)

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total 26 question thy jin m se 2o number k mcqs
mostly mcq's from prevous paper
redix sort ka question aya 2 number ka r 5 number ka
apliication of edit distance ai thi
heap sort ka worst case pocha hoa tha

2 question m codes diye hoye thy onk worst case time analysis likhny thy
average case ki assumption pochi gai thi,

MY TODAY PAPER CS502 SAEED AHMED MC120400429

MCQS almost all past paper sy thy , kuch 4 5 hongy new

1) how we heapify? 2 makrs

2) solve the knap-sap algoritham with brute force it takes O(2^n) time , can we improve efficiency ? 2 marks

3) three Applications of Edit distance ? 3 marks

4) why do we analysis average case of randumlize algorithem and not in case of worst algoritham ? 3 marks

4) 1 array thi howi thi is tarah kuch , 455, 698, 826,123,100,300,111, 819,943, apply radix sort on it? 5 marks

5) given array list order x1, x2, ...xn , thats hase n/5 copies, use the algoritham average cost , is tarah ka tha kuch.....5 marks

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My today paper of CS502 dated 20-12-2013:
total 20 MCQs thay baqi 2 numbers kay 2 questions 3 numbers kay 2 questions and 5 numbers kay 2 questions thay.
mostly MCQs Mooaaz file se aai the.
subjective questions:
1. give any three applications of edit distance. 3 marks
2. a. what is common in dynamic programming and divide-and -conquer 1 marks
   b. give any one deference between dynamic programming and divide-and -conquer 2 marks
3. three matrix A1 A2 A3 are multiplied in this way ((A1xA2)A3) vlaues yaad nai baad me pocha gaya tha what is its cost. 2 marks
4. what is the basic idea of counting sorting 2 marks
5. chain matrix multiplication-dynamic programing formulation (handouts page85) se ek 5 marks ka question aya tha.

---

mid term me 6 chapter tk include hy
my todays paper
mcqs were mostly from past paperz
A1XA2XA3 ki jo example buk me hy wo i the 2 num ki
quick sort ki time coplexty define krni the 2 num
what is memorization ? 2 num
radix sy related 5 num ka quiz tha
TAR , EAR , COW , NOW , DOG , is trha k rhyming words diye hoe thy iny radix sort k 2 phases apply kr k solve krna tha
knapsack ka jo last algorithem dia hoa hy buk me uska time coplexity btaani the 5 num ka tha
remember me in ur prayers

My CS502 ppr 23-12-13 tuesday
Mcqs ez thay 4,5 new thay baki moaz file say thay
1.how we build heap sort?2
2.quick sort ka tha statement page 49 line 6 wali
statement the kuch is ko xplain karna tha
3.What is the worst case running time for the Quick sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time Θ(n log n).3
4. brute force and dynamic approach ko mix kar k kuch tha
pg 92 ki line 7 wali statement the kuch 3
5. knapsap ki statement the k decreasing order ma move hota hay T/F hay
reason b dyne the 5 marks ka
6-
steps in dynamic problem 5
best ov luck guyz

"Subjective papaer"
Q#1 Neccessary assumption for average case analysis of quick sort? 2
Q#2 total running time for edit distance? 2
Q#3 change required in quick sort for decreasing order? 3
Q#4 what are catalan numbers ? write formula? 3
Q#5 binary tree for (A1(A2A3)(A4A5)) 5
Q#6 aik sumation given tha us ko assymptotic notation me likhnaa thaa?? 5

1- three variables a1, a2, a3.how many no of comparisons can make from these nos. 2marks
2- find cost of (A1A2)A3. A1=5x4 A2=4x6 A3=6x2. Same from matrix multiplication 2marks
3- Describe heapsort algorithm 3marks
4-three applications of edit distance 3marks
5-options were given like yes/no in the table. tell about mergesort, heapsort, insertionsort, bublesort, are these stable, inplace or both? 5marks
6-knapsack conceptual question 5marks

How we build heap
We build a max heap out of the given array of numbers A[1..n]. We repeatedly extract the maximum item from the heap. Once the max item is removed, we are left with a hole at the root.

Write Pseudo code for KNAPSACK algorithm?
Solution:
KNAPSACK (n, W)
1 for w=0,W
2 do V[0,w]ß0
3 for i=0,n
4 do V[i,0]ß0
5 for w=0,W
6 do if(wi w& +V[i-1,w-]>V[i-1,w])
7 then V[I,w]ß +V[i-1,w] 8 else V[i,w]ßV[i-1,w]
The time complexity is clearly O(n,W), it must be cautioned that as n and W get large, both time and space complexity become significant.

Spelling correction in edit distance?

A better way to display this editing process is to place the words above the other:

S D I M D M

M A - T H S

A - R T - S

The first word has agap for every insertion (1) and the second word has a gap for every deletion (d). Mathes (m) do not count. The edit transcript is defined as a string over the alphabet m,s,i,d that describes a transformation of one string into other.

Differentiate b/w Bubble sort, insertion sort and selection sort?

Bubble sort: scan the array. Whenever two consecutive items are found that are out of order, swap them. Repeat until all consecutive items are in order.

Insertion sort: assume that A[1…i-1] have already been sorted. Insert A[i] into its proper position in this sub array. Create this position by shifting all larger elements to the right.

Selection sort:

Assume that A[1..i-1] contain the i-1 smallest elements in sorted order. Find the smallest in A[i….n] swap it with A[i].

Write down the steps of dynamic programming strategy?

Developing a dynamic programming algorithm generally involves two separate steps:

1_formulate problem recursively.

Write down a formula for the whole problem as a simple combination of answers to smaller sub problems.

2_ Build solution to recurrence from bottom up:

Write an algorithm that starts with base cases and works its way up to the final solution.

What are the applications of edit distance technique? Name any three

Solution:

Spelling Correction

Plagiarism Detection

Computational Molecular Biology

Solve: $T(n) = (T(q-1) + T(2-q) + 2)$

What is the worst case running time for the bucket sort? What simple change is required in the algorithm to preserve its linear expected running time and makes it worst case time Θ(n log n)

Solution:

The worst case for bucket sort occurs when the all inputs falls into single bucket,

for example. Since we use insertion sort for sorting buckets and insertion sort has a worst case of $O(n^2)$. the worst case runtime for bucket sort is $O(n^2)$.

By using an algorithm with worst case runtime of O(nlgn) instead of insertion sort for sorting buckets, we can ensure that worst case is O(nlgn) without affecting the average case behavior.

To see that the worst case is still O(nlgn), lets consider a case where n data are distributed among two buckets, a elements in one bucket and na in the other. Since we use O(nlgn sorting algorithm in each bucket, the run time for each sort is, $kalg(a) + c_2$ and $k(n\ a)lg(n\ a) + c2$, where k; c_2 are positive constants. The total run time is $kalg(a)+k(na)lg(na)+2_{c2}$ This quantity attains its maximum value when a = 0 or a = n and the maximum value is $knlgn + 2c_2$. Thus total run time is still O(nlgn). It is clear from this that maximum running cost occurs when data are in single bucket instead of spread in two buckets. Extending this argument, we can see that worst case

for the hash table occurs when all inputs hash into the same bucket. (We also note that the expressions obtained are basically convex combinations of nlgn which is a convex function and then Jensen's rule can be applied to arrive at the same conclusion).

Given an unordered list of n x0, x1, x2, …, xn and elements is common, if there are atleast n/5 copies of it.We want to identify all the common numbers in our list. Give O(n log n) to solve the problem.

Solution:

We define R n to be the set of ordered n-tuples of real numbers,

Rn := {(x1, x2 . . . xn) : x1, . . . , xn ∈ R}.The elements of Rn are called vectors. Given a vector x = (x1, . . . , xn), the numbers x1, . . . , xn are called the components of x.

You are already quite familiar with Rnfor small values of n.

Find the out cost A1=5 x 4 A2= 4 x 6 A3= 6×2

Solution:-
For Instance
A1. = 5 x 4
A2 = 4 x 6
A3 = 6 X 2
A4 = 2 x 7
Hence
A1 x (A2 A3) XA4 = ((5 X 4 X 2) + (4 X 6 2)) + 2 X 7 X 5
= 40 + 48 + 70
= 88 + 70
= 158
HERE OPTIMAL SEQUENCE IS A1 (A2 A3) A4. For this cost 158 which is optimal the optimal sequence is a1x (a2 xa3) xa4

How to construct an optimal solution for o/1 knapsack problem ?

Construct an optimal solution from computed information. Let us try this: If items are labelled 1, 2, . . . , n, then a subproblem would be to find an optimal solution for S k = items labelled 1, 2, . . . , k This is a valid subproblem definition. The question is: can we describe the final solution S n in terms of
subproblems S k ? Unfortunately, we cannot do that. Here is why. Consider the optimal solution if we can choose items 1 through 4 only.
Items chosen are 1, 2, 3, 4
Total weight: 2 + 3 + 4 + 5 = 14
Total value: 3 + 4 + 5 + 8 = 20
Now consider the optimal solution when items 1 through 5 are available

Effect of calling max heap

The smallest key is in the root in a min heap; in the max heap, the largest is in the root.

What is heap and what is heap order?

The heap is the section of computer memory where all the variables created or initialized at runtime are stored. The heap order property: in a
(min) heap, for every node X, the key in the parent is smaller than or equal to the key in X.

Quick sort such that sort the array in to non-increasing order?

Quick sorting, an array A[1..n] of n numbers We are to reorder these elements into increasing (or decreasing) order. More generally, A is an array of objects and we sort them based on one of the attributes – the key value. The key value need not be a number. It can be any object from a totally ordered domain. Totally ordered domain means that for any two elements of the domain, x and y, either $x < y$, $x = y$ or $x > y$.

Draw the cost table for chain multiplication problem with initial states

(A1)(A2A3A4 . . .An)
or (A1A2)(A3A4 . . .An)
or (A1A2A3)(A4 . . .An)
. . . . . .
or (A1A2A3A4 . . .An−1)(An)

QNo.4 we can avoid unnecessary repetitions for recursive calls?

Answer:-

We can avoid these unnecessary repetitions by writing down the results of recursive calls and looking them up again if we need them later. This process is called memorization

Worst case for edit distance algorithm? What is the simple change that can change the worst case time?

Analysis of DP edits distance
There are entries in the matrix. Each entry E(i,j) takes time to compute. The total running is Recursion clearly leads to the same repetitive call pattern that we saw in Fibonnaci sequence. To avoid this, we will use the DP approach. We will build the solutionb bottom-up. We will use the base case E(0,j) to fill first row and the base case E(I,0) to fill first column. We will fill the remaining E matrix row by row.

Describe an efficient algorithm to find the median of a set of 106 integers; it is known that there are fewer than 100 distinct integers in the set

Step1: Start
Step2: Find the 100 distinct numbers among 10^6 integers.
Step3: Sort the 100 distinct numbers

Step4: Count the distinct numbers
Step5: if count is odd, middle number is the median
Step6: if count is even, add the middle two numbers then divide by 2, the result is the median
Step5: End number.

What is the formula for generating Catalan numbers?

Equation (22) is a recurrence relation.
C_(n+1) = C_n * [2(2n+1)] / (n+2)
we have the values of n in one column and the values of C_n in another, then to put this formula in Excel, on the (n+1)-th row just replace C_n and n with the appropriate cells from the previous row.

What are Catalan numbers? Give the formula.

Catalan numbers form a sequence of natural numbers that occur in various counting, often involving recursively defined objects
Formula is C(n) = 2n Cn / (n+1)

Write a pseudo code Fibonacci With memorization? —

Sol
MEMOFIB(n)
1 if (n < 2)
2 then return n
3 if (F[n] is undefined)
4 then F[n] MEMOFIB(n − 1) + MEMOFIB(n − 2)
5 return F[n]

Write Down the steps of Dynamic programming

Dynamic programming is essentially recursion without repetition. Developing a dynamic programming algorithm generally involves two separate steps:

- Formulate problem recursively. Write down a formula for the whole problem as a simple combination of answers to smaller sub problems.
- Build solution to recurrence from bottom up. Write an algorithm that starts with base cases and works its way up to the final solution.

Dynamic programming algorithms need to store the results of intermediate sub problems. This is often but not always done with some kind of table. We will now cover a number of examples of problems in which the solution is based on dynamic programming strategy.

My today paper 27-12-2013
Mcq's mostly from past papers

1. Draw cost table r chain etrix multiplication problem with initial state. 2 marks
2. How to avoid unnecessary repetition for recursive calls. 2 marks
3. Why do we analyze the average case performance of randomized algorithm and not its worst case performance. 3marks
4. How to construct an optimal solution for 0/1 knapsack problem. 3 marks
5. Steps of dynamic programming strategy. 5 marks
6. Consider the following recursivem search function which return the index of array

element containing key, if such an element exist.

```
Int  search(int array,int left, int right,int key)
{
Int mid= left+right/2
If (left == right)
Return left
Else
If (array [mid]<= array ..........)
.........
..........
........
```

List{5,6,7,8}
Pora question to yad nai
Is tra ka kuch tha

Remember me in ur prayers

Q: How can Edit Distance algorithm help for Plagiarism Detection?
Q: Quick Sort such that sort the array into non-increasing order.
Q: What is the necessary assumption for average case analysis of Quick Sort?
Q: What is the method of multiplying a series of matrices and how it works?
Q: Apply 2 steps of Redix sort on following values (5 values were given):

Value	Step1	Step2
321		
211		
144		
200		
324		

Q: Using final Chain Matrix multiplication fill in the missing values for given matrices (6 different matrices were given):
Final cost matrix:

0	Some value	Some value	Some value	Some value	?
	0	Some value	Some value	Some value	Some value
		0	Some value	Some value	Some value
			0	Some value	Some value
				0	Some value
					0

M entries calculation matrix:

0	Some value	Some value	Some value	Some value	?
	0	Some value	Some value	Some value	Some value
		0	Some value	Some value	Some value
			0	Some value	Some value
				0	Some value
					0

(I don’t remember the given matrices and values.)

---

mera toaday paper 28 date ka ,
mcqs from moaz file 5 were new ,
sbjctive , 5 marks ka q ,
binary sort of multipulication,((A1)A2)(A3))
Radix sort krni thi , bht ziada value di hui thi , 15 mint wahn lg gaye , 5 marks ,
divide conquer of quick sort , cost table bnani thi , dynamic programmingse bhi q tha table ka
order of decreasing pocha tha ,
easy hai wesy ye paper , baki logon ki nisbat ,mera ko program nhi tha code likhny ka ,
over all 13 lectr se uar phr 16 s e22 tk ,
best of luch for the paper s

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what is average and worst case of quick sort.....2
brute force take theta n^2 time for..... can we make it batter.....2
show root of max heap have have maximum value.....3
how dynamic programming use for spell correction.....3
fiborchi logarithm.....5
some value of matrix A1, A2 and A3 which batter a1(a2a3(or (a1a2(a3

My today's paper

1. How Edit distance is used for Speech Recognition?

1. How many combinations are possible if elements of are a1,a2, & a3?

1. Write the sets which are formed using elements a1, a2 & a3?

1. Write three applications of Edit distance

1. Gate, Xeon, Stem, ……. Array was given and we have to apply Radix Sort and show the first iteration?

1. B1 = 5X6 ; B2 = 6X7 & B3 = 7X8

If these matrixes are multiplied

1. B1(B2B3)
2. (B1B2)B3

Which sequence of matrix multiplication is more fast; prove with mathematical calculations.

MCQs mostly new, 10% from Moaaz file…mostly from Quiz-2 previous quizes

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