Computer programming

Assignment 01

Group members

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Algorithm 01

GPS Navigation System

Shortest path

1. Start
2. Let A be the starting point (initialize value of 0) and B be the ending point.
3. Let loc1, loc2, loc3 and so on be the unvisited locations between A and B in dipaths.
4. Initialize the paths from A to every location a value.
5. When object travels from point A to any unvisited location, the value of the path leading to that location is added to that unvisited location to find it's distance from A.
6. After that, the object goes from that unvisited location to another unvisited location in the direction towards B. The value stored in 1st unvisited location will be added to the path's value and stored in 2nd unvisited location.
7. Step 6 continues until object reaches point B and adds the value to point B.
8. Now step 5,6 and 7 will repeat until every possible path is covered and B stores every value separately.
9. compare every value stored in B with each other through different paths
10. Display the smallest value as the shortest path.
11. End

Algorithm 02

Sorting Series in Ascending Order

1. Start
2. Store the series of numbers in an array.
3. Initialize the array a start and end index.
4. Find the midpoint using the index initialized and divide the array in half.
5. Repeat step 4 till each array contains only single number.
6. Now take two arrays compare their values and combine them in single array such that lower value number comes first and higher value number after it
7. Combine all the smaller sorted arrays in a single sorted array in order that lower value number come first and higher value number at last.
8. Output the new sorted array with change of pointer allocations.
9. End

Algorithm 03
Fibonacci Series

1. Start
2. Initialize prev, currnet and next as previous, current and next consecutive numbers in the series.
3. Apply repetitive increments to the following assignments till the value of n given in step 6 is reached:

   next = prev + current
   Prev = current
   Current = next

4. Ask the user for n (range) of the fabonacci series.
5. If n<0, give error as n cannot be negative.
6. If n>0, find the series using step 2.
7. Display the series.
8. End.

Algorithm 04

Inventory Management

1. Start.
2. Add data structure (map)to store values.
3. Display main menu that has the following options
   - Add items.
   - Remove items.
   - Update quantity of existing items.
   - Generate report.
   - Exit.
4. Ask user to select an option.
5. If user select "Add items", Take item name and quantity from user and store it in data structure (map).
6. If user selects "Remove items", Take item name and quantity from user. If item is present in the list then remove it otherwise display an error.
7. If user selects "Update quantity of existing items", Take item's name and updated value of quantity. If the item is present in the list, update its quantity otherwise display an error.
8. If user selects "Generate report" then display the stored list of items and their quantity on the screen
9. If user selects "Exit" then terminate the program.
10. End.