

Bahria University Islamabad Campus

Department of Software Engineering (Fall 2023)

Assignment # 01



Algorithm # 01

Step 01: Start.

Step 02: Initialize the starting point (A) and ending point (B).

Step 03: Let a, b and c be the unvisited locations between A and B.

Step 04: Initialize the paths from A to every location a value.

Step 05: 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 its distance from A.

Step 06: After that, the object goes from that unvisited location to another unvisited location in the direction towards B. The value stored in a will be added to the path's value and stored in b.

Step 07: Step 6 continues until object reaches point B and adds the value to point B.

Step 08: Repeat step 5, 6 and 7 until every possible path is covered and B stores every value separately.

Step 09: Compare every value stored in B with each other through different paths.

Step 10: Display the smallest value as the shortest path.

Step 11: Stop.

Algorithm # 02

Step 01: Start.

Step 02: Initialize an array and store the series of numbers in it.

Step 03: Iterate through the elements from first to last.

Step 04: Compare values of adjacent elements.

Step 05: If the value of the current element is greater than the next element then swap the two elements.

Step 06: Repeat steps 3, 4 and 5 until no swaps are made during the iteration.

Step 07: The series of numbers in the array is now in ascending order. Display the array.

Step 08: Stop.

Algorithm # 03

Step 01: Start.

Step 02: Declare variables $a=0$, $b=1$, c and n .

Step 03: Ask user to enter range of Fibonacci series (n).

Step 04: Display a and b .

Step 05: Add a and b and store this value in variable c .

Step 06: Display c .

Step 07: Change the values of a and b to b and c .

Step 08: Repeat step 5, 6 and 7 $n-2$ times.

Step 09: Stop.

Algorithm # 04

Step 01: Start.

Step 02: Create an empty inventory list.

Step 03: Display the given menu:

1. Add items
2. Remove items
3. Update quantity of existing items
4. Generate Report
5. Quit

Step 04: Ask user to select an option.

Step 05: If user enters 1, prompt the user to enter the new item. If item already exists in inventory then update its quantity by adding the new quantity to the existing quantity. If item does not exist in inventory then add the item with the given quantity.

Step 06: If user enters 2, prompt user to enter the item name. If item exists in inventory then remove the item from inventory otherwise display error message.

Step 07: If user enters 3, prompt the user to enter the item name and its quantity. If item is present in the list then update the quantity by adding the new quantity to the existing quantity otherwise display error message.

Step 08: If user enters 4, then display the name of each item in the inventory along with its quantity.

Step 09: If user enters 5, then exit.

Step 10: Stop.