Bahria University, Islamabad

Department of Software Engineering

Computer Programming

(Fall-2023)

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Comments:

Signature

Assignment 1: Problem Solving (CLO-2)

Assignment Description:

In this assignment, you will delve into the world of algorithms, which are the fundamental building blocks of computer programming. You will be presented with four real-world scenarios, and your task is to create algorithms to solve these problems efficiently. These scenarios will test your problem-solving skills and your ability to design algorithms that can be implemented in a programming language of your choice.

QUESTION#1: Finding the shortest distance.

STEP 1:
Start.
STEP 2:
Provide locations and distances between them as input.
STEP 3:
Initialize start location to “currentLocation”. And also initialize distance and a variable i=0. And a variable j which reads the path moved.
STEP 4:
Take the “destination” as input from user.
STEP 5:
Now move to the other location in pair with the currentLocation in the direction of destination and initialize that location as currentLocation. (j=pathmoved)
STEP 6:
Calculate the distance moved and store the value in i. (Such that i=i+distance)
STEP 7:
Now start a loop of Step 5 and Step 6 and repeat it until currentLocation=destination.
STEP 8:
Print the output i and j which are the path and distance moved.
STEP 9:
Stop

Question 2: Sorting a List of Numbers

STEP#1:

Start

STEP#2:

Take input of list of numbers from the user. And initialize a list named "ANSWER","negativeList" and "positiveList"

STEP#3:

Now divide that list into two parts one positive integers and other in negative integers.

STEP#4:

Now first sort the positive integers in ascending form.(i.e. smaller to greater number)

STEP5#5:

Then sort the negative integers in such an order that the largest number with -ve sign comes first and the list moves towards smaller to smallest integer with negative sign,(Step5 and 6 can be done by using for loop or bubblesort)

STEP#6:

Now rejoin the positive and negative list in ANSWER. Also if 0 is in the list then such that ANSWER= negativeList + 0 + positiveList

Else ANSWER= negativeList + positiveList.

STEP#7:

Output ANSWER which is the ascending order.

STEP#8:

STOP.

Question 3: Calculating Fibonacci Numbers

STEP#1:

Start

STEP#2:

Input numbers which are not negative in the variable "num",

STEP#3:

Initialize variable i=0 and j=1. And another variable a=2.

STEP#4:

if num=0 then give 0 as output

else if num=1 then give 1 as output.

Then goto step

Else goto step 5

STEP#5:

If a<=num then calculate the next Fibonacci number as:

Fibonacci number=i+j

STEP#6:

Update I to j and j to next Fibonacci number.

And increase a by1.

STEP#8:

GIVE OUTPUT j as the nth Fibonacci number.

STEP#9:

Stop.

Question 4: Inventory Management

n/a

GITHUB REPOSITORY:

https://github.com/HasnadaudR/Assgmnt01