**Programming Fundamentals Assignment #2**

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**Ans1.**

Algorithm is a set of instructions or code that is written to give commands to a computer.

**Ans2.**

Algorithm helps us make perform certain tasks. Algorithms are important to how computers process data and instructions. By creating an algorithm, we are able to evaluate many solutions to one problem.

**Ans3**.

Total=0

For I = 1 to 10

Input age

Total=total + age

Age = 0

Next i

Avg= total / 10

Output avg

**Ans4.**

Designing a flowchart is a step by step process where inputs, process, if statements, and other instructions are placed in shapes indicating different actions that are connected by arrows showing a “flow”. The flowchart has a ‘start’ command to initiate it and an end command at the end to terminate the program.

**Ans5.**

Flowcharts are essential in the pre-programming phase where the program is being designed. It is used to show different process of a program step by step in sequential order. Using flowchart makes the programming more efficient and error free. They are used to troubleshoot and fix programs as it makes it easier to identify problems. Flowcharts are used in many different workplaces to do different tasks like auditing, planning and programming etc.

**Ans6.**

Apples=50 mangoes= 35 potato=10 tomato = 15

Enter number of apples bought

A= number of apples bought \* Apples

Enter number of Mangoes bought

B= number of mangoes bought \* mangoes

Enter number of Potatoes bought

C= number of potatoes bought \* potato

Enter number of tomatoes bought

D = number of tomatoes bought\* tomatoes

Items = number of apples bought + number of Mangoes bought + number of Potatoes bought + number of tomatoes bought

Total =A+B+C+D

Return= 500 – total

Print “Amount returned is” + return + “and the items bought are” + number of apples bought +” kg apples,” + number of mangoes bought + “kg mangoes,” + amount of tomatoes bought + “kg tomatoes and “ + amount of potatoes bought + “kg potatoes. Total items purchases : “ + items

**Ans7.**

|  |  |  |
| --- | --- | --- |
| Data | Process | Output |
| Number | I= 1  X=1  Loop  X=X\*I  I++  Loop end when I=Number | X |

|  |  |  |  |
| --- | --- | --- | --- |
| Input | Process | Module | Output |
| Number | X=1  I=1  x=x\*I  I++ Till I=Number | 1100  1210  1220  1230  1200  1300 | Output X |

Until I=Number

Output X

X=X\*I

I=I+1

X=1 I=0

Input Number

Input Number

X=1

For i=1 to Number

X=X\*1

Next I

Output X



|  |  |  |
| --- | --- | --- |
| Data | Process | Output |
| I=0  Total=0 | I=I+1  Total =Total +i  Till i=100 | Total |

|  |  |  |  |
| --- | --- | --- | --- |
| Input | Process | Module | Output |
|  | I=0 & Total=0  I=I+1  Total =Total+I  Till I = 100 | 1100  1210  1220  1200  1300 | Total |

Total = 0

Print Total

I = I +1

Total = Total + I

I = 0 and total = 0

Till I = 100

For I = 1 to 100

Total = Total + 1

Next I

Print Total



|  |  |  |
| --- | --- | --- |
| Data | Process | Output |
| X  Y  Z | Is X >Y and X>Z  Is Y > X and Y>Z  Is Z >X and Z>Y | Largest |

|  |  |  |  |
| --- | --- | --- | --- |
| Input | Process | Module | Output |
| X,Y,Z | X>Y & X>Z  Y>X & Y>Z  Z>X & Z>Y  Greatest number | 1100  1210  1220  1230  1200  1000 | Largest |

Print “Y is the largest”

Print “X is the largest”

Print “Z is the largest”

Is Y>X and Y>Z?

Is X>Y and X>Z?

Input X,Y,Z

Input X,Y,Z

If X>Y and X>Z

Then print “X is the largest”

Else If Y>X and Y>Z

Then print “Y is the largest”

Else print “Z is the largest”

End If

|  |  |  |
| --- | --- | --- |
| Data | Process | Output |
| N | X=2  A=NModX  X=X+1  If A=0 then composite  If A=1 then prime | Prime / Composite |

|  |  |  |  |
| --- | --- | --- | --- |
| Input | Process | Module | Output |
| N | X=1  X=X+1  A=NModX  A=1 | 1100  1211  1210  1310  1300  1000 | Prime |

Till X=< N-1

X=X+1

Print “It’s a Prime Number

Print “It’s a composite Number”

Is A = 1?

A=NModX

Input N

X=2

Input N

For X = 2 to N-1

A=NModX

If A=0

Then print “Number is Composite”

Else If A=1

Then next i

Print “Number is Prime”

End if

|  |  |  |
| --- | --- | --- |
| Data | Process | Output |
| N  A=1  B=1  S=0  I=2 | Sum=a+b  A=b  B=sum  I++ | sum |

|  |  |  |  |
| --- | --- | --- | --- |
| Input | Process | Module | Output |
| N | A=1,B=1,S=0,i=2  Sum=A+B  B=Sum  A=B  I++ | 1110  1100  1211  1210  1220  1200  1300 | Sum |

Print Sum

I++

Sum= a+b

A=b & b=sum

I<=n?

I=2

Input N

A=1,b=1 & sum=0

Input N

A=1

B=1

Sum=0

I=2

For I =2 to N

Sum = a+b

A=b

B=sum

Print sum “,”

Next i

**Q8.**

1. **Make a flowchart to calculate the area of a triangle.**

Print A

A = ½\*base\*height

Enter Base and Height

1. **Check laptops charging, if full turn off the charger if not, output the battery not charged.**

“Battery not charged”

Turn off charging

Check battery

Battery fully charged?

No

Yes

1. **Enter an employee name, check that in the database, if name found in database then print “found” else print “not found”**

Yes

No

Print “Employee found”

Print “Employee not found”

Found in the database?

Check name in database

Enter Name

1. **Ask patient’s blood pressure, if the b.p is less than 80 then output bp low if b.p greater than 90 then output b.p high and If b.p is b/w 80 and 90 then output b.p normal.**

Is b.p > 90?

PRINT “B.P is low”

PRINT “B.P is high”

PRINT “B.P is normal”

Is b.p < 80?

Enter B.P

Yes No

No Yes

1. **Input name and roll number, then output a message which says “I am ‘Name’ this is my pf assignment and my roll number is ‘roll number’”**

Print “I am ” + Name + “ and this is my pf assignment. My Roll number is “ + Roll Number

Roll Number

Input Name