4CS001 –

Introductory Programming

&

Problem Solving

Workshop Report

Name: Prajal Tulsi

Group: L4GC4

Student ID: 2358866

Week: 1

Module Leader	Tutor
Yogesh Bikram Shah	Sujan Aryal

Workshop - Week 1

PART 1

1. Write how python is an interpreted programming language.

   Ans: Python is an interpreted programming language because the python compiler converts the program line by line and executes the program.

2. Who created Python and when was it first released?

   Ans: Python was created by Guido van Rossum and it was first released on Feb 20, 1991.

3. What is the latest version of python?

   Ans: The latest version of python is 3.12.0.

4. What was the motivation behind creating Python and what problems was it designed to solve?

   Ans: Guido wanted to build a programming language that would help programmers resolve the issue they were facing back in the days. The problem was the programming languages had limited functionality and was very difficult to understand and learn. Thus, python was created to address these problems.

PART 2

1. Write a pseudocode and produce flowchart to calculate the area of the rectangle.

ANS:

Algorithm:

Step 1: Start

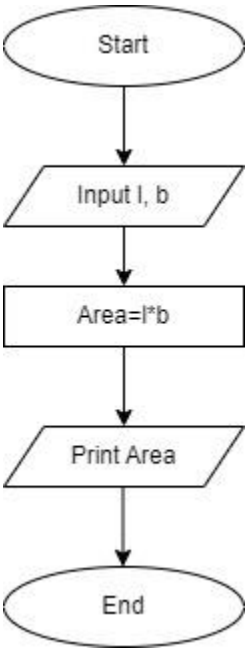
Step 2: Enter length and breadth

Step 3: Multiply length and breadth and store in area

Step 4: Display area

Step 5: End

Flowchart:



2. Write a pseudocode and produce flowchart to display the area of four walls.

Ans:

Algorithm:

Step 1: Start

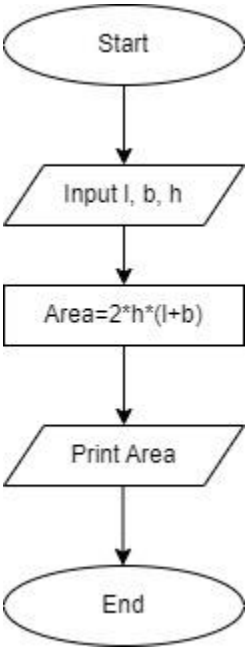
Step 2: Input length, breadth, height

Step 3: Do the calculation 2*height *(length + breadth) and store in area

Step 4: Display area

Step 5: Stop

Flowchart:



3. Now Write a pseudocode and produce flowchart to calculate the perimeter of the circle.

ANS:

Algorithm:

Step 1: Start

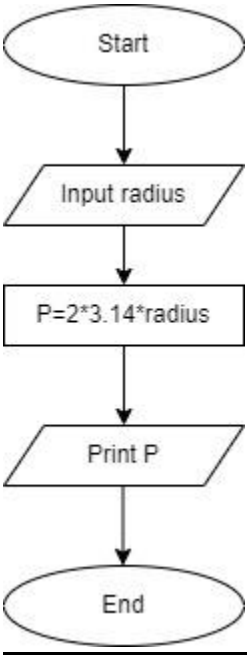
Step 2: Enter radius

Step 3: Do the calculation 2*3.14*radius and store in perimeter

Step 4: Display perimeter

Step 5: End

Flowchart:



4. Write a pseudocode and produce flowchart to ask the user to enter a number and display its square.

ANS:

Algorithm:

Step 1: Start

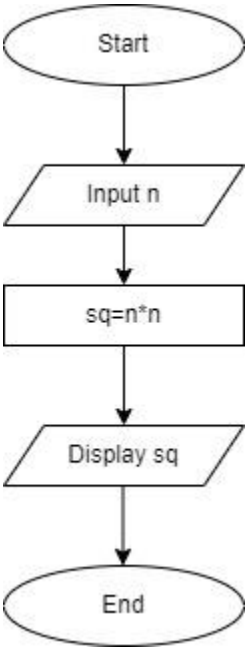
Step 2: Enter a number and store in n

Step 3: Multiply n by n and store it in sq

Step 4: Display sq

Step 5: End

Flowchart:



5. Write a pseudocode and produce flowchart to display the area of a triangle when three sides are given.

Ans:

Algorithm:

Step 1: Start

Step 2: Enter the length of 3 sides of triangle and store in a, b, c respectively

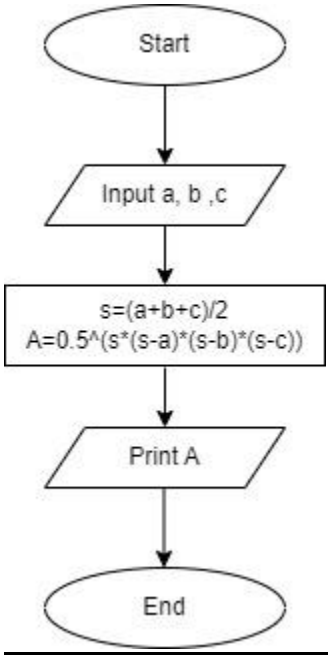
Step 3: Do the calculation (a+b+c)/2 and store in s

Step 4: Do the calculation (s*(s-a)*(s-b)*(s-c))^0.5 and store in area

Step 5: Display area

Step 6: End

Flowchart:



PART 3

1. Write a pseudocode/flowchart to identify if the given number is odd or even.

ANS:

Algorithm:

Step 1: Start

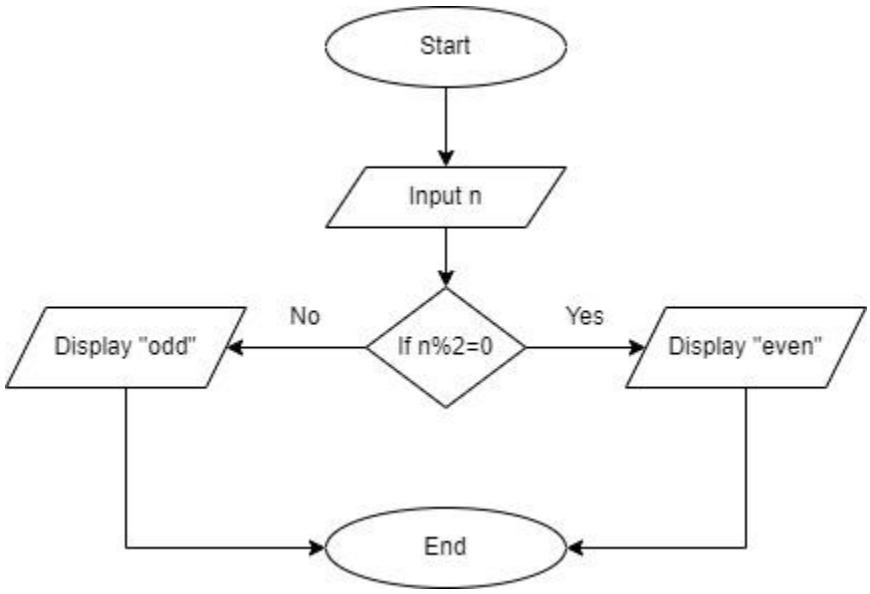
Step 2: Enter a number and store it in n

Step 3: Check if n is divisible by 2 or not

Step 4: If yes display “even” else display “odd”

Step 5: End

Flowchart:



2. Write a pseudocode/flowchart and a python program to identify if a number is prime or not.

ANS:

Algorithm:

Step 1: Start

Step 2: Enter a number and store it in n

Step 3: Define a as 2

Step 4: Check if n is divisible a

Step 5: If yes display “not prime” and goto step 9

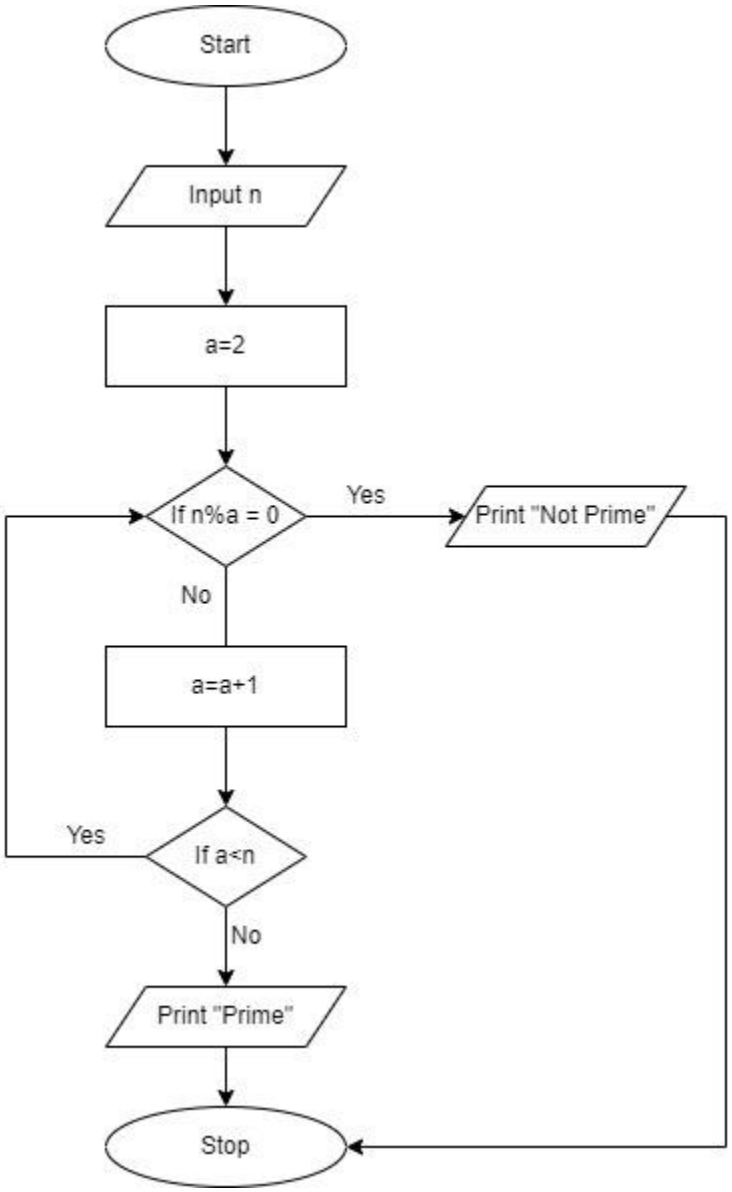
Step 6: Add 1 to a

Step 7: If a is less than n then goto step 4

Step 8: Display “prime”

Step 9: End

Flowchart:



3. Write a pseudocode/flowchart to identify if a person of given age is eligible to cast a vote or not.

Ans:

Algorithm:

Step 1: Start

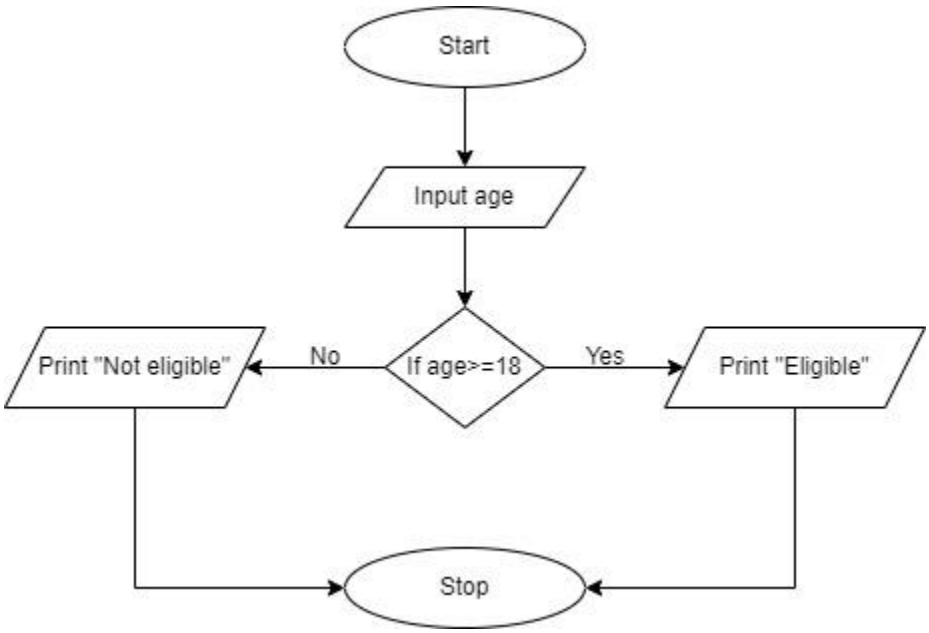
Step 2: Enter age

Step 3: Check if age is equal to or greater than 18

Step 4: If yes display “eligible” else display “not eligible”

Step 5: End

Flowchart:



PART 4

1. Write a pseudocode/flowchart to print factors of a given number

ANS:

Algorithm:

Step 1: Start

Step 2: Enter n

Step 3: Let i as 1

Step 4: Check if n is divisible by i

Step 5: If yes then display the value of i

Step 6: Add 1 to i

Step 7: Check if i is less than or equal to n

Step 8: If yes goto step 4

Step 9: End

Flowchart: