Q1. Write a Python program which accepts the radius of a circle from the user and compute the area.

Algorithm:

Step 1: Import the Math library of Python for accessing the value of π.

Step 2: Create a variable "r" where the value of the radius is stored as a float type, after taking the input from the user.

Step 3: Inside the print function, return the area of the circle by using the formula $A = \pi r^2$ and formatting the result using the method of concatenation as- 'The area of your circle is:' text and area formula.

Flowchart:
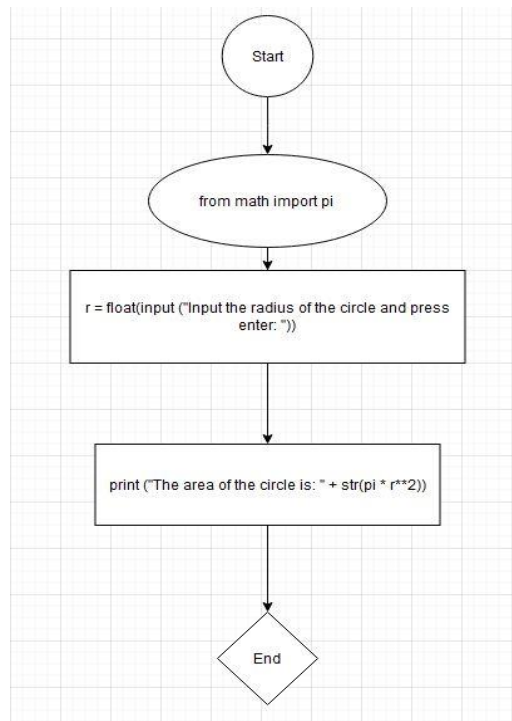
Python Program and Output:

```
#1.Write a Python program which accepts the radius of a circle from the user and compute the area.

from math import pi
r = float(input ("Input the radius of the circle and press enter: "))
print ("The area of the circle is: " + str(pi * r**2))
```

```
Input the radius of the circle and press enter:  2
The area of the circle is: 12.566370614359172
```

Q2. Write a Python program which has 2 variables first and last name and print them in reverse order with a space between them.
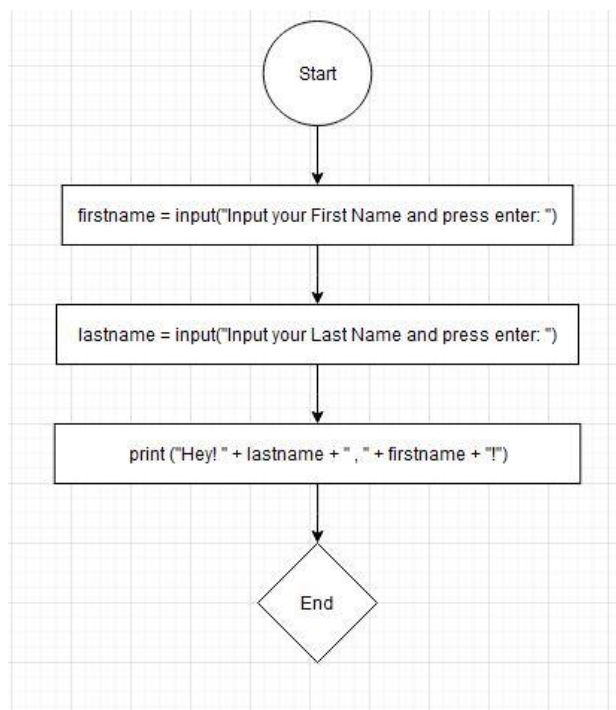
Algorithm:

Step 1: Declare a variable "firstname" where the value of the first name is stored, after taking the input from the user.
Step 2: Declare a variable "lastname" where the value of the last name is stored, after taking the input from the user.
Step 3: Display the name reversed inside the print function by using the method of concatenation.

Flowchart:

```
                    ( Start )
                        |
                        v
  +--------------------------------------------------------+
  | firstname = input("Input your First Name and press enter: ") |
  +--------------------------------------------------------+
                        |
                        v
  +--------------------------------------------------------+
  | lastname = input("Input your Last Name and press enter: ")  |
  +--------------------------------------------------------+
                        |
                        v
  +--------------------------------------------------------+
  | print ("Hey! " + lastname + " , " + firstname + "!")   |
  +--------------------------------------------------------+
                        |
                        v
                     < End >
```

Python Program and Output:

```python
#2.Write a Python program which has 2 variables first and last name and print them in reverse order with a space between them.

firstname = input("Input your First Name and press enter: ")
lastname = input("Input your Last Name and press enter: ")
print ("Hey! " + lastname + " , " + firstname + "!")
```

```
Input your First Name and press enter:  Maisha
Input your Last Name and press enter:  Farzana
Hey! Farzana , Maisha!
```

Q3. Write a Python program to get the difference between a given number and 17, if the number is greater than 17 return double the absolute difference.
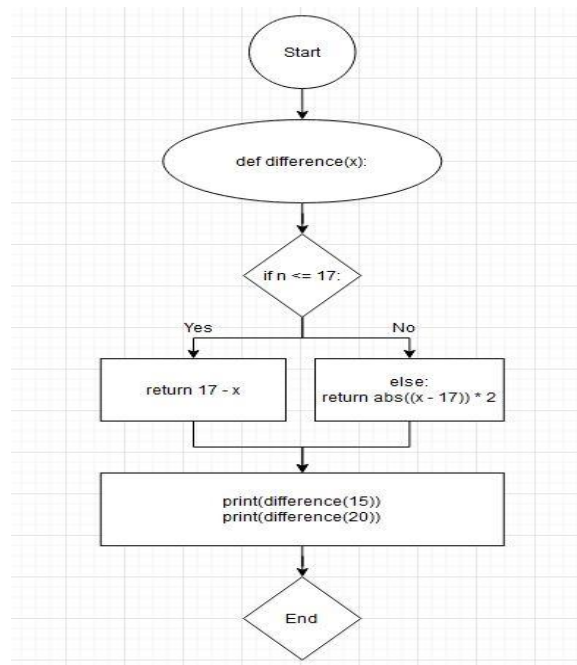
Algorithm:

Step 1: Create and define a function named "difference", under which create condition with 'if' and 'else'.
Step 2: Under if condition: if the provided number 'x' is smaller or equal to 17 return the value of their difference.
Step 3: Otherwise under else condition: if the number is greater than 17 return the double of the absolute difference.
Step 4: Print the result by calling out the function name along with the input value of x.

Flowchart:

Python Program and Output:

```
#3.Write a Python program to get the difference between a given number and 17,
#if the number is greater than 17 return double the absolute difference.

def difference(x):
    if x <= 17:
        return 17 - x
    else:
        return abs((x - 17)) * 2

print(difference(15))
print(difference(20))
```
```
2
6
```

Q4. Write a Python program to test whether a number is within 100 of 1000 or 2000.
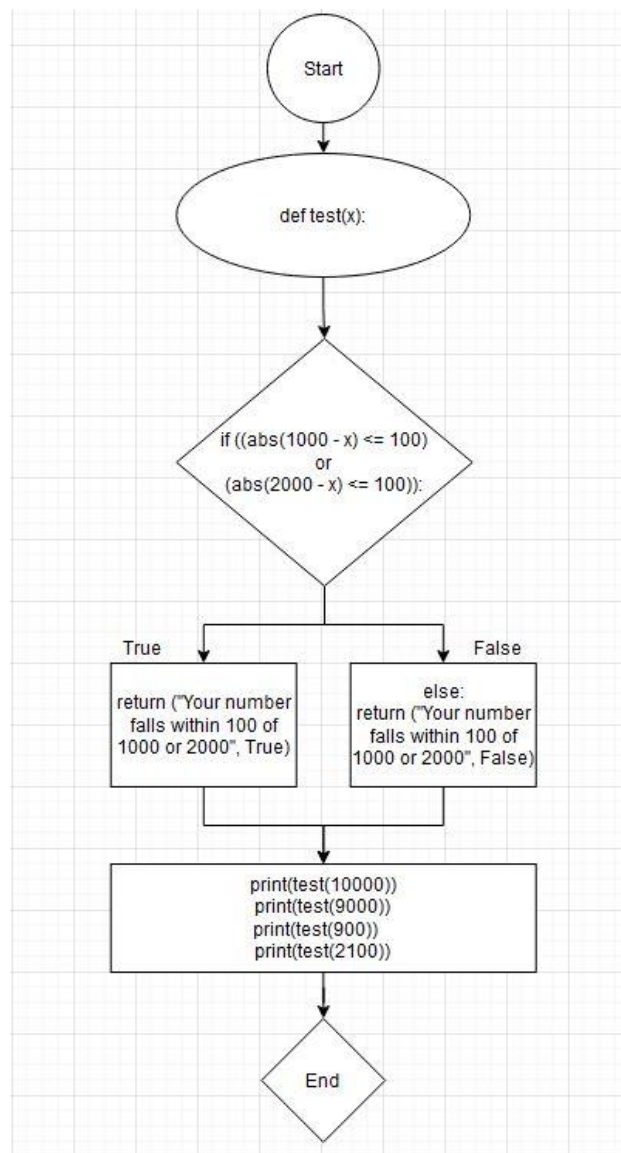
Algorithm:

Step 1: Create and define a function named "test", under which create condition with 'if' and 'else', where the input number is 'x'.
Step 2: Under if condition: if the provided number 'x' lies in either of these two conditions:
(abs(1000 - x) <= 100) or (abs(2000 - x) <= 100), then return the result as True
Step 3: Otherwise under else condition: if it doesn't meet the conditions return the result as False.
Step 4: Print the result by calling out the function name along with the input value of x.

Flowchart:

```
                        ( Start )
                           |
                           v
                  (   def test(x):   )
                           |
                           v
                  / if ((abs(1000 - x) <= 100) \
                  <          or                 >
                  \  (abs(2000 - x) <= 100)):   /
                      |                   |
                True  v                   v  False
        +-------------------+   +-------------------+
        | return ("Your     |   |      else:        |
        | number falls      |   | return ("Your     |
        | within 100 of     |   | number falls      |
        | 1000 or 2000",    |   | within 100 of     |
        | True)             |   | 1000 or 2000",    |
        |                   |   | False)            |
        +-------------------+   +-------------------+
                  |                     |
                  +----------+----------+
                             v
               +-------------------------+
               |   print(test(10000))    |
               |   print(test(9000))     |
               |   print(test(900))      |
               |   print(test(2100))     |
               +-------------------------+
                             |
                             v
                         ( End )
```

Python Program and Output:

```
#4.Write a Python program to test whether a number is within 100 of 1000 or 2000.

def test(x):
    if ((abs(1000 - x) <= 100) or (abs(2000 - x) <= 100)):
        return ("Your number falls within 100 of 1000 or 2000", True)
    else:
        return ("Your number falls within 100 of 1000 or 2000", False)

print(test(10000))
print(test(9000))
print(test(900))
print(test(2100))
```

```
('Your number falls within 100 of 1000 or 2000', False)
('Your number falls within 100 of 1000 or 2000', False)
('Your number falls within 100 of 1000 or 2000', True)
('Your number falls within 100 of 1000 or 2000', True)
```

Q5. Write a Python program to calculate the sum of three given numbers, if the values are equal then return three times of their sum.

Algorithm:

Step 1: Create and define a function named "sum_of_three", under which create condition with 'if', where the 3 input numbers are 'x, y and z'.

Step 2: Declare the variable 'sum' by calculating the sum of three given numbers **(e.g. sum= x+y+z).**

Step 3: Under if condition: if the provided number 'x', 'y' and 'z' are all equal to each other then as a result return 3 times of their sum.

Step 4: Otherwise, if it doesn't meet the condition return the result as sum of the three numbers.

Step 5: Print the result by calling out the function name along with the input values: x,y and z.

Flowchart:
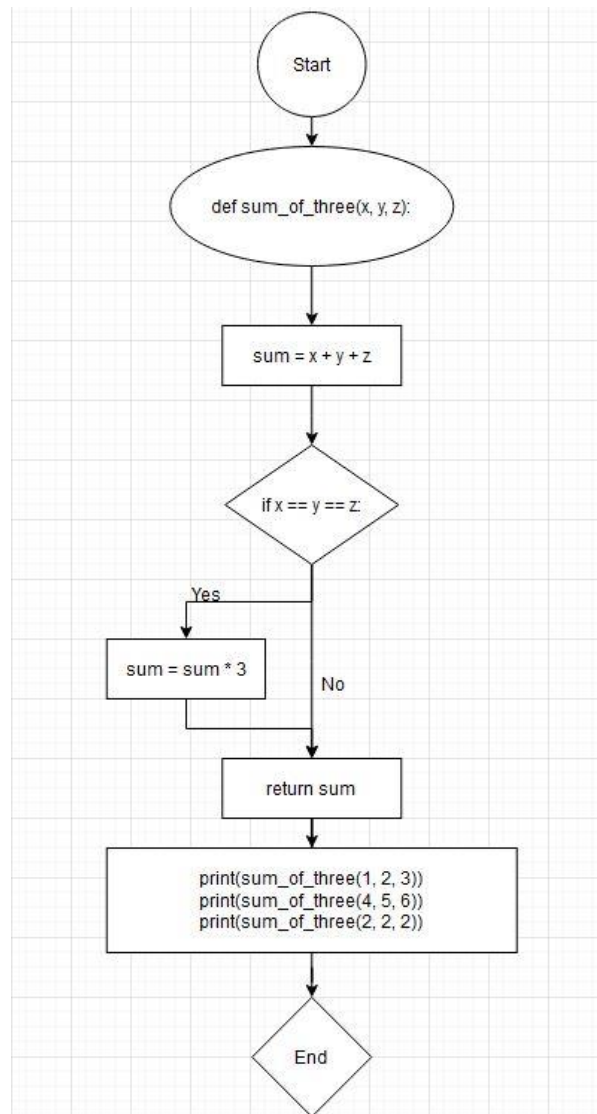
Python Program and Output:

```
#5.Write a Python program to calculate the sum of three given numbers, if the values are equal then return three times of their sum.

def sum_of_three(x, y, z):
    sum = x + y + z
    if x == y == z:
        sum = sum * 3
    return sum

print(sum_of_three(1, 2, 3))
print(sum_of_three(4, 5, 6))
print(sum_of_three(2, 2, 2))
```
```
6
15
18
```