Assignment1

December 30, 2024

[1]:
```
#Name: Siddhant Puranik
#Roll No.: A-327
#Class: B Tech CE - A
```

[17]:
```
#Write a program to enter a number and print its square, cube and square root.
import math
x = int(input("Enter a number: "))
square = x * x
cube = x * x * x
sqrt = float(math.sqrt(x))
print("Square of {0} is {1}".format(x, square))
print("Cube of {0} is {1}" .format(x, cube))
print("Square root of {0} is {1}" .format(x, sqrt))
```

```
Enter a number:  4

Square of 4 is 16
Cube of 4 is 64
Square root of 4 is 2.0
```

[23]:
```
#WAP to calculate the average of 3 numbers.
print("Input three numbers:")
x = int(input("First number: "))
y = int(input("Second number: "))
z = int(input("Third number: "))
average = float((x+y+z)/3)
print("Average of {0}, {1}, {2} is {3}.".format(x,y,z,average))
```

```
Input three numbers:

First number:  3
Second number:  5
Third number:  4

Average of 3, 5, 4 is 4.0.
```

[26]:
```
#Write a program to calculate the area of a right-angle triangle.
print("Enter the height and base of the triangle")
height = float(input("Height: "))
base = float(input("Base: "))
```

```
area = float((height * base)/2)
print("Area of the triangle is {0}." .format(area))
```

```
Enter the height and base of the triangle

Height:  2.5
Base:  6

Area of the triangle is 7.5.
```

[29]:
```
#WAP to calculate simple interest
p = float(input("Enter the Principal amount: "))
r = float(input("Enter the Rate of Interest: "))
t = float(input("Enter the time period(in years): "))

si = float((p*r*t)/100)

print("Simple interest is {0}" .format(si))
```

```
Enter the Principal amount:  20000
Enter the Rate of Interest:  7.1
Enter the time period(in years):  3

Simple interest is 4260.0
```

[30]:
```
#WAP to convert temperature in Celsius into Fahrenheit.
cel = float(input("Enter the temperature in Celcius: "))
far = float(((9/5) * cel) + 32)
print("{0} Celcius in Farenheit is {1}" .format(cel,far))
```

```
Enter the temperature in Celcius:  32

32.0 Celcius in Farenheit is 89.6
```

[2]:
```
#WAP to find Euclidean distance between two points on a plane.
import math
print("Enter two points on the plane:")
x1 = float(input("x1 = "))
y1 = float(input("y1 = "))
x2 = float(input("x2 = "))
y2 = float(input("y2 = "))

d = float(math.sqrt(((x1-x2)**2)+((y1-y2)**2)))

print(f"The Euclidean distance is: {d}")
```

```
Enter two points on the plane:

x1 =  1
y1 =  2
x2 =  4
y2 =  6
```

```
The Euclidean distance is: 5.0
```

[33]:
```python
#Write a Python program to swap two variables.
#1.        Using temp variable
a = int(input("Enter a variable 'a':" ))
b = int(input("Enter a variable 'b':" ))
temp = a
a = b
b = temp

print(f"After swapping: a = {a} and b = {b}")
```

```
Enter a variable 'a': 3
Enter a variable 'b': 5

After swapping: a = 5 and b = 3
```

[34]:
```python
#2.        Using the comma operator
a = int(input("Enter a variable 'a':" ))
b = int(input("Enter a variable 'b':" ))

a,b = b,a

print(f"After swapping: a = {a} and b = {b}")
```

```
Enter a variable 'a': 4
Enter a variable 'b': 6

After swapping: a = 6 and b = 4
```

[35]:
```python
#3.        Using bitwise XOR operator

a = int(input("Enter a variable 'a':" ))
b = int(input("Enter a variable 'b':" ))

a = a ^ b
b = a ^ b # (a ^ b) ^ b = a
a = a ^ b # (a ^ b) ^ a = b

print(f"After swapping: a = {a} and b = {b}")
```

```
Enter a variable 'a': 6
Enter a variable 'b': 12

After swapping: a = 12 and b = 6
```

[3]:
```python
# WAP to find roots of a quadratic equation ax2+bx+c=0

import math
print("Finding roots of a quadratic equation ax^2+bx+c=0")
a = float(input('Enter value of a: '))
```

```
b = float(input('Enter value of b: '))
c = float(input('Enter value of c: '))

d = float((b**2)-4*a*c)

x1 = (-b+math.sqrt(d))/(2*a)
x2 = (-b-math.sqrt(d))/(2*a)

print(f"The roots of the quadratic equation {a}x^2+{b}x+{c} = 0 are {x1} and␣
 ↪{x2}")
```

```
Finding roots of a quadratic equation ax^2+bx+c=0

Enter value of a:  1
Enter value of b:  -5
Enter value of c:  6

The roots of the quadratic equation 1.0x^2+-5.0x+6.0 = 0 are 3.0 and 2.0
```