

Assessment

short/internz

(Q1)

① write a python program to calculate the area of a rectangle given its length and width.

A:- def rectangle_area(length, width):

* return length * width

if __name__ == "__main__":

try:

length = float(input("Enter the length
of the rectangle:"))

width = float(input("Enter the width of
the rectangle:"))

if length <= 0 or width <= 0:

print("Please enter positive values
for length and width.")

else:

area = rectangle_area(length,
width)

'Point ("the area of the rectangle
is : ", area)
'

• Except ValueError:

Point ("Invalid input. Please enter numeric
values for length and width.")

Input:

Enter the length of the rectangle

: 15

Enter the width of the rectangle: 10

Output:

the area of the rectangle is: 150

Q) write a Python program to convert miles
to kilometers ,

A:- miles = float(input("Please enter miles:"))

$$\text{Kilometers} = \text{miles} * 1.6$$

print(Kilometers, "kilometers")

Output:

Please enter miles : 22

35.2 kilometers

③ write a function to check if a given string is a palindrome.

```
def isPalindrome(s):
```

```
    return s == s[::-1]
```

```
s = "malayalam"
```

```
ans = isPalindrome(s)
```

```
if ans:
```

```
    print("Yes")
```

```
else:
```

```
    print("No")
```

Output:

Yes.

4. write a python program to find the second largest element in a list.

A:- $\text{list} = [10, 20, 4, 45, 99]$

$mx = \max(\text{list}[0], \text{list}[1])$

$\text{second max} = \min(\text{list}[0], \text{list}[1])$

$n = \text{len}(\text{list})$

for i in range(2, n):

if $\text{list}[i] > mx$:

$\text{second max} = mx$

$mx = \text{list}[i]$

elif $\text{list}[i] > \text{second max}$ and $mx[1] = \text{list}[i]$:

$\text{second max} = \text{list}[i]$

elif $mx == \text{second max}$ and $\text{second max}[1] = \text{list}[i]$:

$\text{second max} = \text{list}[i]$

$\text{second max} = \text{list}[i]$

print("Second highest number is :")

ST8 (Second max))

Output: second highest number

is : 45.

Q. Explain what Indentation means in Python.

A: Indentation in Python is used to execute the block of code. It refers to the spaces at the beginning of a code line, where in other programming languages the Indentation in code is for readability only, the Indentation in Python is very important.

⑥ write a program to perform set difference operation.

$$A = \{1, 2, 3, 4, 5, 7, 9\}$$

$$B = \{2, 4, 6, 7, 9, 0\}$$

Print ('Difference of A and B:', A-B)
Output:

Difference of A and B: {1, 3, 5}

⑦ write a python program to print numbers from 1 to 10 using a while loop.

```
i=1  
while (i<=10):  
    print(i) i+=1
```

Output:

1	8
2	9
3	10
4	
5	
6	
7	

Q) write a program to calculate the factorial of a number using a while loop.

- def factorial(n):

if n == 0:

return 1

else:

return n * factorial(n-1)

out:

number 5

result = factorial(number)

Print ("The factorial of number
is {result} ")

⑨ Write a Python program to check if a number is positive, negative, or zero. using if - else - else statements.

```
num = float(input("Input a number"))
if num > 0:
    print("it is a positive number")
elif num == 0:
    print("It is zero")
else:
    print("it is a negative number")
```

out put:

Input a number : 150

it is a positive number

⑩ write a program to determine the largest among three numbers using conditional statements.

num1 = 10

num2 = 14

num3 = 12

if (num1 >= num2) and (num1 >= num3)
largest = num1

else if (num2 >= num1) and (num2 >= num3)
largest = num2

else :

 largest = num3

Print ("The largest number is", largest)
output ;

The largest number is 14. 19

11. ~~Ex~~ write a python program to create a numpy array filled with ones of given shape

```
A:- import numpy as np
```

```
array = np.ones(5)
```

```
print(array)
```

Output:

```
[1. 1. 1. 1. 1.]
```

12. write a program to create a 2D numpy array initialized with random integers.

```
import numpy as np
```

```
new_array = np.random.randint(5, size  
= (5, 3))
```

```
print("Random set of rows from 2D  
array array,")
```

Point (new_array)

Output

Random set of rows from 2D array
array

[[4 0 2]]

[4 2 4]

[1 0 4]

[4 4 3]

[3 4 3]

13. write a python program to generate an array of evenly spaced numbers over a specified range using linspace.

A:- Import numpy as np

```
sequence = np.linspace(0, 1, 5)  
print(sequence)
```

output:-

```
array([0. , 0.25, 0.5, 0.75,  
       1.])
```

14. write a program to generate an array of 10 equally spaced values between 1 and 100 using linspace.

A:- Import numpy as np

```
np.linspace(1, 10)
```

array [21.

, 1.18367347, 1.36734604, 1.5102041, 1.7346285

(f 1, ..., 1.18367347, 1.36734604, 1.5102041, 1.7346285

[1.91836735, 2.0204082, 2.28571429, 2.46938776,

2.6530822,

2.8367386, 3.02040816, 3.20408168, 3.5877551, 3.57142857

3.75510204, 3.93877551, 4.12244898, 4.3062245,

4.67346929, 4.85714286, 5.04081623, 5.2244898, 5.40816325

5.59183673, 5.7755102, 5.95918367, 614285714, 6.3265306

8.51020408, 6.69387755, 6.87755102, 7.06122449,

7.42857143, 7.6122449, 7.79591837, 7.9795984, 8.16326

8.34693878, 8.53061224, 8.71428571, 8.89795718,

9.081632653

9.26530612, 9.44897959, 9.6326503, 9.81632653,

10. 3)

15. write a Python program to create an array containing even numbers

output

```
List1 = [10, 21, 4, 45, 66, 93]
```

```
for num in list1:
```

```
    if num % 2 == 0:
```

```
        print(num, end = " ")
```

outputs

10 4 66

16. write a program to create an array containing numbers from 1 to 10 with a step size of 0.5 using arange -

```
import numpy as geek
```

```
print("A\n", geek.arange(4).reshape(2,4), "\n")
```

```
print("A\n", geek.arange(4,10), "\n")
```

```
print("A\n", geek.arange(4,20,3), "\n")
```

Q5. write a python program to create an array containing even numbers

list1 = [10, 21, 4, 45, 66, 93]

for num in list1:

if num % 2 == 0 :

print(num, end = " ")

Output:

10 4 66

6. write a program to create an array containing numbers from 1 to 10 with a step size of 0.5 using arange -

import numpy as geek

print("A\n", geek.arange(4).reshape(2, " \\\n"))

print("A\n", geek.arange(4, 10), "\\\n")

print("A\n", geek.arange(4, 20, 3), "\\\n")

output:

A

[C D I]

[2 3]

A

[4 5 6 7 8 9]

A

[4 7 10 13 16 19]