SMART INTERNZ-APSCHE

AI / ML

# Assessment-1

date: feb 14, 2024

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

INPUT :

def AreaofRectangle(width, height):

Area = width \* height

print("Area of a Rectangle is: %.2f" %Area)

# Take input of width and height from user

w = float(input('Enter the Width of a Rectangle: '))

h = float(input('Enter the Height of a Rectangle: '))

# Call the function with input values

AreaofRectangle(w, h)

OUTPUT:

Enter the Width of a Rectangle: 12

Enter the Height of a Rectangle: 14

Area of a Rectangle is: 168.00

2. write a python pogram to convert miles to kilometers

INPUT :

def miles\_to\_kilometers(miles):

kilometers = miles \* 1.60934

return kilometers

# Take input of miles from user

miles = float(input('Enter the number of miles: '))

# Convert miles to kilometers

kilometers = miles\_to\_kilometers(miles)

# Print the result

print(f'{miles} miles is equal to {kilometers} kilometers.')

OUTPUT :

Enter the number of miles: 123

123.0 miles is equal to 197.94882 kilometers.

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

INPUT :

def is\_palindrome(s):

"""

Returns True if the given string is a palindrome,

and False otherwise.

"""

s = s.lower()

s = ''.join(c for c in s if c.isalnum())

return s == s[::-1]

# Test the function with some example strings

print(is\_palindrome('racecar')) # True

print(is\_palindrome('hello')) # False

print(is\_palindrome('hello1')) # False

print(is\_palindrome('A man a plan a canal Panama')) # True

OUTPUT :

True

False

False

True

\*\* Process exited - Return Code: 0 \*\*

Press Enter to exit terminal

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

Input :

def second\_largest(numbers):

first, second = max(numbers), float('-inf')

for num in numbers:

if num > first:

first, second = num, first

elif num > second and num < first:

second = num

return second

numbers = [int(input(f'Enter element {i}: ')) for i in range(1, 6)]

print(f'The second largest number is {second\_largest(numbers)}')

output :

def second\_largest(numbers):

first, second = max(numbers), float('-inf')

for num in numbers:

if num > first:

first, second = num, first

elif num > second and num < first:

second = num

return second

numbers = [int(input(f'Enter element {i}: ')) for i in range(1, 6)]

print(f'The second largest number is {second\_largest(numbers)}')

Output :

Enter element 1: 568765

Enter element 2: 2343243

Enter element 3: 454786

Enter element 4: 67678987

Enter element 5: 56790

The second largest number is 2343243

=== Code Execution Successful ===

5.Explain what indentation means in Python.

Input :

def greet(name):

print("Hello, " + name)

greet("Alice")

Output :

Hello, Alice

=== Code Execution Successful ===

6. Write a python program to perform set difference operation.

# define two sets

set1 = {1, 2, 3, 4, 0}

set2 = {4, 5, 6, 7, 8}

# set difference of set1 and set2

diff\_set = set2.difference(set1)

# print the result

print("The set difference of set1 and set2 is:", diff\_set)

Output :

The set difference of set1 and set2 is: {8, 5, 6, 7}

\*\* Process exited - Return Code: 0 \*\*

Press Enter to exit terminal

7.Write a Python program to print numbers from 1 to 10 using a while loop.

# initialize a counter variable

counter = 1

# use a while loop to print numbers from 1 to 10

while counter <= 10:

print(counter)

counter += 1

Output :

1

2

3

4

5

6

7

8

9

10

=== Code Execution Successful ===

8.Write a python program to calculate the factorial of a number using a while loop.

Input :

def factorial(n):

result = 1

while n > 1:

result \*= n

n -= 1

return result

# test the function

num = 7

print("The factorial of", num, "is", factorial(num))

Output :

The factorial of 7 is 5040

=== Code Execution Successful ===

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

*Inuput :*

# take a number as input

num = int(input("Enter a number: "))

# check if the number is positive, negative, or zero

if num > 0:

print("The number is positive")

elif num < 0:

print("The number is negative")

else:

print("The number is zero")

Output :

Enter a number: -32

The number is negative

=== Code Execution Successful ===

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

Input :

# take three numbers as input

num1 = float(input("Enter first number: "))

num2 = float(input("Enter second number: "))

num3 = float(input("Enter third number: "))

# determine the largest number

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

largest = num1

elif (num2 >= num1) and (num2 >= num3):

largest = num2

else:

largest = num3

# print the largest number

print("The largest number is:", largest)

Output :

Enter first number: 36

Enter second number: 45

Enter third number: 64

The largest number is: 64.0

=== Code Execution Successful ===

11.Write a Python program to create a numpy array filled with ones of given shape.

Input :

import numpy as np

# define the shape of the array

shape = (3, 4)

# create a NumPy array filled with ones

ones\_array = np.ones(shape)

# print the array

print(ones\_array)

Output :

[[1. 1. 1. 1.]

[1. 1. 1. 1.]

[1. 1. 1. 1.]]

\*\* Process exited - Return Code: 0 \*\*

Press Enter to exit terminal

1. Write a python program to create a 2D numpy array initialized with random integers.

Input :

import numpy as np

# Create a 2D numpy array of shape (4, 3) with random integers between 1 and 10

arr\_2d = np.random.randint(1, 10, size=(4, 3))

print(arr\_2d)

Output :

[[5 7 4]

[3 9 1]

[1 4 5]

[9 1 3]]

=== Code Execution Successful ===

1. Write a Python program to generate an array of evenly spaced numbers over a specified range using linspace.

Input :

import numpy as np

array = np.linspace(3, 4, 7)

print(array)

Output :

[3. 3.16666667 3.33333333 3.5 3.66666667 3.83333333

4. ]

=== Code Execution Successful ===

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

Input :

import numpy as np

# Generate an array of 10 equally spaced values between 1 and 100

values = np.linspace(1, 100, 10)

# Print the array

print(values)

Output :

[ 1. 12. 23. 34. 45. 56. 67. 78. 89. 100.]

=== Code Execution Successful ===

1. Write a Python program to create an array containing even numbers from 2 to 20 using arange.

Input:

# Import the numpy library

import numpy as np

# Create an array of numbers from 0 to 20 using arange

arr = np.arange(0, 20)

# Use the modulo operator to filter out the even numbers

arr = arr[arr % 2 == 0]

# Print the array of even numbers

print(arr)

Output :

[ 0 2 4 6 8 10 12 14 16 18]

=== Code Execution Successful ===

1. Write a python program to create an array containing numbers from 1 to 10 with a step size of 0.5 using arange.

Input :

# Import the numpy library

import numpy as np

# Create an array of numbers from 1 to 10 with a step size of 0.5 using arange

arr = np.arange(1, 10.5, 0.5)

# Print the array

print(arr)

Output :

[ 1. 1.5 2. 2.5 3. 3.5 4. 4.5 5. 5.5 6. 6.5 7. 7.5

8. 8.5 9. 9.5 10. ]

=== Code Execution Successful ===

…………THANKYOU…………