

Exercise 1:

Write a Python program to calculate the square root of a number using the math module.

```
print("Exercise 1 : Write a Python program to calculate the \n "
      "square root of a number using the math module\n")
import math

number = float(input("Enter a Number : "))
sqrt = math.sqrt(number)
print(f'\n Squire Root of {number} is {sqrt}')
```

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\pytho

Exercise 1 : Write a Python program to calculate the
square root of a number using the math module

Enter a Number : 9

Squire Root of 9.0 is 3.0

Process finished with exit code 0

Exercise 2:

Write a Python program to generate a random number between 1 and 10 using the random module.

```
print("Exercise 2 :Write a Python program to generate a random number \n"
      "between 1 and 10 using the random module")
import random

random_number = random.randint(1,10)

print(f"\nThe random number between 1,10 is {random_number}")
```

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe" "

Exercise 2 :Write a Python program to generate a random number
between 1 and 10 using the random module

The random number between 1,10 is 1

Process finished with exit code 0

Exercise 3:

Write a Python program to convert a string to uppercase using the string module.

```
print("Exercise 3:\n"
      "Write a Python program to convert a string to \n"
      "uppercase using the string module.\n")

import string

def convert_to_upper(s):
    return s.upper()

input_srt = input("Enter a Word : ")
output_str = convert_to_upper(input_srt)
print(f'Uppercase of {input_srt} is {output_str}')
```

Python_Class (1) ×

Exercise 3:
Write a Python program to convert a string to uppercase using the string module.

Enter a Word : *Jack and James*
Uppercase of Jack and James is JACK AND JAMES

Process finished with exit code 0

Exercise 4: Write a Python program to calculate the factorial of a number using the math module.

```
print("Exercise 4:\nWrite a Python program to calculate \n"
      "the factorial of a number using the math module.\n")

import math

number = int(input("Enter a number : "))
factorial = math.factorial(number)
print(f'The factorial of {number} is : {factorial}')
```

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts
Exercise 4:
Write a Python program to calculate
the factorial of a number using the math module.

Enter a number : *8*
The factorial of 8 is : 40320

Exercise 5:

Create a Python module named calculator that contains functions to add, subtract, multiply and divide two numbers. Write a program to use this module to perform calculations.

```
def add(x,y):
    return x + y

def subtract(x,y):
    return x - y

def multiply(x,y):
    return x * y

def divide(x,y):
    if y == 0:
        raise ValueError("Cannot divide by 0")
    return x // y

print("Exercise 5 : \nCreate a Python module named calculator that contains \n"
      "functions to add, subtract, multiply and divide two numbers. \n"
      "Write a program to use this module to perform calculations.\n")

import calculator

x = float(input("Enter a number : "))
y = float(input("Enter a number : "))

add = calculator.add(x,y)
subtract = calculator.subtract(x,y)
divide = calculator.divide(x,y)
multiples = calculator.multiply(x,y)

print(f'Addition of {x} and {y} is : {add}')
print(f'subtraction of {x} and {y} is : {subtract}')
print(f'division of {x} and {y} is : {divide}')
print(f'multiples of {x} and {y} is : {multiples}')
```

Exercise 5 :

Create a Python module named calculator that contains functions to add, subtract, multiply and divide two numbers. Write a program to use this module to perform calculations.

Enter a number : 100

Enter a number : 50

Addition of 100.0 and 50.0 is : 150.0

subtraction of 100.0 and 50.0 is : 50.0

division of 100.0 and 50.0 is : 2.0

multiples of 100.0 and 50.0 is : 5000.0

Exericse 6:

Create a Python module named greetings that contains functions to greet the user in different languages. Write a program to use this module to greet the user in different languages.

```
def greet_english():  
    print("Hello...!")  
  
def greet_french():  
    print("Bonjour....!")  
  
def greet_spanish():  
    print("Hola....!")  
  
def greet_german():  
    print("Hallo....!")
```

```
print("Exericse 6:Create a Python module named greetings \n"  
      "that contains functions to greet the user in different \n"  
      "languages. Write a program to use this module to greet\n"  
      " the user in different languages.\n")  
  
import greetings  
  
print("Choose a Language \n"  
      "1.English\n2.french\n3.spanish\n4.german")  
  
choise = int(input("Enter your choice (1-4) : "))  
  
if choise == 1:  
    greetings.greet_english()  
elif choise == 2:  
    greetings.greet_spanish()  
elif choise == 3:  
    greetings.greet_french()  
elif choise == 4:  
    greetings.greet_german()  
else:  
    print("Invalid choice please chose (1-4)")
```

```
Python_Class (1) ×
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe"
Exericse 6:Create a Python module named greetings
that contains functions to greet the user in different
languages. Write a program to use this module to greet
the user in different languages.

Choose a Language
1.English
2.french
3.spanish
4.german
Enter your choice (1-4) : 3
Bonjour....!

Process finished with exit code 0
```

Exericse 7:

Create a Python module named employee that contains a class Employee with attributes name, salary and methods get_name() and get_salary(). Write a program to use this module to create an object of the Employee class and display its name and salary.

```
print("Exericse 7:Create a Python module named employee \n"
      "that contains a class Employee with attributes name, \n"
      "salary and methods get_name() and get_salary(). Write \n"
      "a program to use this module to create an object of the \n"
      "Employee class and display its name and salary.\n")

from employee import Employee

employee1 = Employee("Rahul S", 75000)
print('Name : ', employee1.get_name())
print('Salary : ', employee1.get_salary())

Python_Class (1) ×
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe"
Exericse 7:Create a Python module named employee
that contains a class Employee with attributes name,
salary and methods get_name() and get_salary(). Write
a program to use this module to create an object of the
Employee class and display its name and salary.

Name :  Rahul S
Salary :  75000

Process finished with exit code 0
```

Exercise 8:

Create a Python module named `math_operations` that contains functions to calculate the area of a circle, the area of a rectangle and the area of a triangle. Write a program to use this module to perform area calculations

```
import math

def circle_area(radius):
    """Calculate the area of a circle"""
    return math.pi * radius ** 2

def rectangle_area(length,width):
    """Calculate the area of a rectangle"""
    return length * width

def triangle_area(base,height):
    """Calculate the area of a triangle"""
    return 0.5 * base * height
```

```
from math_operation import circle_area, rectangle_area, triangle_area

radius = 5
circle_area_result = circle_area(radius)
print(f'area of a circle with length {radius} is = {circle_area_result : .2f}')

length = 7
width = 3
rectangle_area_result = rectangle_area(length,width)
print(f'Area of the rectangle with length {length} and width {width} is: {rectangle_area_result}')

base = 6
height = 4
triangle_area_result = triangle_area(base,height)
print(f'Area of the triangle with base {base} and height {width} is: {rectangle_area_result}')
```

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe

Exercise 8: Create a Python module named `math_operations` that contains functions to calculate the area of a circle, the area of a rectangle and the area of a triangle. Write a program to use this module to perform area calculations

area of a circle with length 5 is = 78.54

Area of the rectangle with length 7 and width 3 is: 21

Area of the triangle with base 6 and height 3 is: 21

Process finished with exit code 0

Exercise 9:

Create a Python module named `file_operations` that contains functions to read and write text files. Write a program to use this module to read the contents of a file and write the contents to a new file.

```
def read_file(file_path):
    try:
        with open("D:\\USERDATA DONT DELETE\\Desktop\\sample.txt", "r") as file:
            return file.read()
    except IOError:
        print(f"Error: Could not read file '{file_path}'")
        return None

def write_file(file_path, content):
    try:
        with open("D:\\USERDATA DONT DELETE\\Desktop\\sample.txt", 'w') as file:
            file.write(content)
        print(f"Successfully wrote content to '{file_path}'")
    except IOError:
        print(f"Error: Could not write to file '{file_path}'")
```

```
import file_operations

# Specify the paths of the input and output files
input_file_path = 'input.txt'
output_file_path = 'output.txt'

# Read the contents of the input file
content = file_operations.read_file(input_file_path)

# Check if the file was read successfully
if content is not None:
    # Write the contents to the output file
    file_operations.write_file(output_file_path, content)
```

Exercise 10:

Create a Python module named `temperature_conversion` that contains functions to convert Celsius to Fahrenheit and Fahrenheit to Celsius. Write a program to use this module to perform temperature conversions.

```
'''Create a Python module named temperature_conversion that contains
functions to convert Celsius to Fahrenheit and Fahrenheit to Celsius. Write a
program to use this module to perform temperature conversions.'''

import temperature_conversion

celsius = 25

fahrenheit = temperature_conversion.celsius_to_fahrenheit(celsius)

print(f"{celsius} degrees Celsius is equal to {fahrenheit} degrees Fahrenheit.")

fahrenheit = 77

celsius = temperature_conversion.fahrenheit_to_celsius(fahrenheit)

print(f"{fahrenheit} degrees fahrenheit is equal to {celsius} degrees celsius.")
```

Python_Class (1) ×

```
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:\Users
25 degrees Celsius is equal to 77 degrees Fahrenheit.
77 degrees fahrenheit is equal to 25 degrees celsius.
```


Exercise 11:

Write a regular expression to match a valid phone number in the format XXX-XXX-XXXX.

```
'''Exercise 11:
Write a regular expression to match a valid phone number
in the format XXX-XXX-XXXX.'''

import re

phone_number_regex = re.compile(r'^\d{3}-\d{3}-\d{4}$')

phone_number = "123-456-7989"

if phone_number_regex.match(phone_number):
    print("Valid phone number")
else:
    print("Invalid phone number")
```

Python_Class (1) ×

```
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\
Valid phone number
```

```
Process finished with exit code 0
```

Exercise 12:

Write a regular expression to match a valid date in the format MM/DD/YYYY.

```
'''Exercise 12:
Write a regular expression to match a valid
date in the format MM/DD/YYYY.'''

import re

date_pattern = r"^(0[0-9]|1\d|2\d|3[01])/(0[1-9]|1[0-2])/(19|20)\d{2}$"

date = "29/10/1986"

if re.match(date_pattern, date):
    print("Valid Date")

else:
    print("Invalid Date")
```

ch(date_pattern, date)

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe"
Valid Date

Process finished with exit code 0

Exericse 13:

Write a regular expression to find all occurrences of the word "fox" in the given text

```
'''Exericse 13:  
Write a regular expression to find all occurrences  
of the word "fox" in the given text'''  
  
import re  
  
text = "one Fox and another Fox fight with Fox"  
  
pattern = r"\bFox\b"  
  
matches = re.findall(pattern, text)  
  
print(matches)  
  
print(f'Number of occurance Fox is : {len(matches)}')
```

Python_Class (1) ×

```
['Fox', 'Fox', 'Fox']
```

```
Number of occurance Fox is : 3
```

```
Process finished with exit code 0
```

Exercise 14:

Write a regular expression to find all occurrences of the word "quick" in the given text

```
'''Exercise 14:
Write a regular expression to find all occurrences
of the word "quick" in the given text'''

import re

text = "The quick brown fox jumps over the lazy dog." \
       "The quick brown fox jumps over the lazy dog again." \
       "The quick brown cat jumps over the lazy dog."

pattern = r"\bquick\b"

matches = re.findall(pattern, text)

print(matches)

print(f'Number of occurrence quick is : {len(matches)}')
```

Python_Class (1) ×

```
['quick', 'quick', 'quick']
Number of occurrence quick is : 3

Process finished with exit code 0
```

Exercise 15:

Write a regular expression to find all occurrences of words that start with the letter "c" in the given text.

```
'''Exercise 15:  
Write a regular expression to find all occurrences of  
words that start with the letter "c" in the given text.'''
```

```
import re  
  
text = "The cat chased the mouse, cow caught"  
  
pattern = r'\b(c\w+)\b'  
  
matches = re.findall(pattern, text)  
  
print(matches)
```

Python_Class (1) ×

```
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Script  
['cat', 'chased', 'cow', 'caught']
```

```
Process finished with exit code 0
```

Exercise 16:

Write a regular expression to find all occurrences of the word "lazy" followed by any one character in the given text.

```
'''Exercise 16:
Write a regular expression to find all occurrences of
the word "lazy" followed by any one character in the given text.'''

import re

text = "The lazy cat chased the quick mouse, lazy dog lazy caught"

pattern = r'lazy.'

matches = re.findall(pattern, text)

print(matches)
```

Python_Class (1) ×

```
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.
['lazy ', 'lazy ', 'lazy ']
```

```
import re

text = "The lazy cat chased the quick mouse, lazy dog lazy"

pattern = r'lazy.'

matches = re.findall(pattern, text)

print(matches)
```

Python_Class (1) ×

```
"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.
['lazy ', 'lazy ']
```

Exercise 17:

Use match() to find if the text starts with "The"

```
'''Exercise 17:
Use match() to find if the text starts with "The'''

import re

text = "The cat chased the mouse"

if re.match(r'The', text):
    print('\n', f"The text '{text}' start with 'The'")
else:
    print('\n', f"The text '{text}' not start with 'The'")
```

h(r'The',text)

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe"

The text 'The cat chased the mouse' start with 'The'

```
import re

text = "Cat chased the mouse"

if re.match(r'The', text):
    print('\n', f"The text '{text}' start with 'The'")
else:
    print('\n', f"The text '{text}' not start with 'The'")
```

h(r'The',text)

Python_Class (1) ×

"C:\Users\VINOD VM\PycharmProjects\pythonProject\venv\Scripts\python.exe"

The text 'Cat chased the mouse' not start with 'The'

Exercise 18:

Use search() to find the first occurrence of the word "fox"

```
'''Exercise 18:
Use search() to find the first occurrence of the word "fox"'''

import re

text = "The quick fox Jumped over"

match = re.search(r'fox', text)

if match:
    print('\n'f'The word "fox" start with index : {match.start()}')
else:
    print('\n'f'Text not contain word "fox" ')
```

Python_Class (1) x

C:\Users\VINOD\OneDrive\Documents\PythonProjects\pythonProject\venv\Scripts\python.

The word "fox" start with index : 10

Process finished with exit code 0

Exercise 19:

Use search() to find the first occurrence of words that start with the letter "c"

```
'''Exercise 19:
Use search() to find the first occurrence of
words that start with the letter "c"'''

import re

text = "The quick brown cat jumps over the lazy dog"

match = re.search(r'\b(c\w+)\b', text)

if match:
    print('\n'f'The word start from "c" start from index : {match.start()}')
else:
    print('\n'f'Text not contain word start from "c" ')
```

Python_Class (1) ×

"C:\Users\VINOD\vn\PycharmProjects\pythonProject\venv\Scripts\python.exe" "C:

The word start from "c" start from index : 16

Process finished with exit code 0