



Vidyavardhini's College of Engineering & Technology

Department of Computer Engineering

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Experiment No. 4
Creating functions, classes and objects using python
Date of Performance:
Date of Submission:



## Experiment No. 4

**Aim:** To study and create functions, classes and objects using python

### Theory:

You can pass data, known as parameters, into a function.

A class is a user-defined blueprint or prototype from which objects are created. Classes provide a means of bundling data and functionality together. Creating a new class creates a new type of object, allowing new instances of that type to be made. Each class instance can have attributes attached to it for maintaining its state. Class instances can also have methods (defined by their class) for modifying their state.

Class creates a user-defined data structure, which holds its own data members and member functions, which can be accessed and used by creating an instance of that class. A class is like a blueprint for an object.

```
def calculate_factorial(number):
```

factorial = 1



```
if number < 0:
    return "Factorial is not defined for negative numbers."
elif number == 0:
    return 1
else:
    for i in range(1, number + 1):
        factorial *= i
    return factorial
```

```
num1 = int(input("Enter the number: "))
factorial1 = calculate_factorial(num1)
print(f"The factorial of {num1} is: {factorial1}")
```

### Output:

```
Enter the number: 24
The factorial of 24 is: 620448401733239439360000
```

**Code: Write a python program to find the number is prime or not using function**

```
def is_prime(number):
    if number < 2:
        return False
    for i in range(2, int(number**0.5) + 1):
        if number % i == 0:
            return False
    return True
```



```
num = int(input("Enter a number to check if it is prime: "))
```

```
if is_prime(num):
```

```
    print(f'{num} is a prime number.')
```

```
else:
```

```
    print(f'{num} is not a prime number.')
```

### Output:

```
Enter a number to check if it is prime: 23
23 is a prime number.
```

```
Enter a number to check if it is prime: 24
24 is not a prime number.
```

### Code: Write a python program for student details using class

```
class Student:
```

```
    def __init__(self, name, roll_number, grade):
```

```
        self.name = name
```

```
        self.roll_number = roll_number
```

```
        self.grade = grade
```

```
    def display_details(self):
```

```
        print(f'Name: {self.name}')
```

```
        print(f'Roll Number: {self.roll_number}')
```

```
        print(f'Grade: {self.grade}')
```

```
student1 = Student("Siddhi Wade", "73", "c")
```

```
student2 = Student("Jidnyasa Naik", "79", "A")
```

```
student1.display_details()
```



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student2.display\_details()

### Output:

```
Name: Siddhi Wade  
Roll Number: 73  
Grade: c  
Name: Jidnyasa Naik  
Roll Number: 79  
Grade: A
```

### Conclusion:

Functions, classes, and objects are essential concepts in Python programming, enabling code organization, modularity, and reusability. Functions allow encapsulation of code blocks, classes provide blueprints for creating objects with attributes and methods, and objects represent instances of classes with specific data and behavior. Understanding how to define and use functions, classes, and objects is crucial for developing maintainable and scalable Python applications.