



**Vidyavardhini's College of Engineering and Technology**

**Department of Artificial Intelligence & Data Science**

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Experiment No. 3
Implement a program that demonstrates the concepts of class and objects
Date of Performance:
Date of Submission:



# Vidyavardhini's College of Engineering and Technology

## Department of Artificial Intelligence & Data Science

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**Aim:** Implement a program that demonstrates the concepts of class and objects

**Objective:** To develop the ability of converting real time entity into objects and create their classes.

### Theory:

A class is a user defined blueprint or prototype from which objects are created. It represents the set of properties i.e., members and methods that are common to all objects of one type. In general, class declarations can include these components, in order:

1. Modifiers: A class can be public or has default access.
2. class keyword: class keyword is used to create a class.
3. Class name: The name should begin with a initial letter (capitalized by convention).
4. Superclass (if any): The name of the class's parent (superclass), if any, preceded by the keyword extends. A class can only extend (subclass) one parent.
5. Interfaces (if any): A comma-separated list of interfaces implemented by the class, if any, preceded by the keyword implements. A class can implement more than one interface.
6. Body: The class body surrounded by braces, {}.

An OBJECT is a basic unit of Object-Oriented Programming and represents the real-life entities. A typical Java program creates many objects, which interact by invoking methods. An object consists of:

1. State: It is represented by attributes of an object. It also reflects the properties of an object.
2. Behavior: It is represented by methods of an object. It also reflects the response of an object with other objects.
3. Identity: It gives a unique name to an object and enables one object to interact with other objects.

**Code:**

1}

```
class Rectangle{  
    int length;  
    int width;  
    void insert(int l, int w){  
        length=l;  
        width=w;  
    }  
    void calculateArea(){System.out.println(length*width);}  
}  
  
class TestRectangle1 {  
    public static void main(String args[]){  
        Rectangle r1=new Rectangle();  
        Rectangle r2=new Rectangle();  
        r1.insert(11,5);  
        r2.insert(3,15);  
        r1.calculateArea();  
        r2.calculateArea();  
    }  
}
```

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19045.3448]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Chaitanya24\Desktop\OOPJ Exp>javac Area.java
C:\Users\Chaitanya24\Desktop\OOPJ Exp>java Area.java
55
45
C:\Users\Chaitanya24\Desktop\OOPJ Exp>
```

## Conclusion:

1) Comment on how you create a class template and their objects.

### Class Template:

- A class in Java is a blueprint that defines the structure and behavior of objects.
- It includes attributes (fields) and methods.
- Provides encapsulation, encapsulating data and methods within a unit.

### Creating Objects:

- Objects are instances of a class created using the **new** keyword.
- Multiple objects can be created from the same class.
- Objects have their own set of attributes and can interact with each other through methods.

### Benefits:

- Reusability: Classes promote code reuse.
- Modularity: Classes break down a program into manageable units.
- Abstraction: Classes hide internal details and expose necessary functionality.
- Data Integrity: Encapsulation ensures data consistency and reliability.

In summary, classes are used to create objects, which are self-contained units with attributes and behavior, promoting organized and maintainable code in Java.