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(B)

Assignment - 1

Aim: Write a Java program to showcase classes, object creation, methods, constructors using student information.

Objectives: 1. To study classes, objects, & creation of object of a class.

2. To study methods, return a value from the method, & pass parameters to the methods.

3. To study constructors & use of constructors.

4. To study different access specifiers in Java & their use for encapsulation.

Theory: 1. Define what is class & object with an example.

class: It is a blueprint or template used to create objects, defining their properties & behaviors.

Object: An instance of a class that represents a real-world entity with specific values.

Ex:-
a class 'Car' is defined as:

```
class car {  
    String color;  
    String name;  
}
```

an object (instance) of class car can be defined as:

```
public class Main {  
    public static void main (String [] args) {  
        car c1 = new car();  
        c1.color = "Blue";  
        c1.name = "xyz";  
    }  
}
```



Q. Give the syntax / format to define methods in a class & give examples for parameter passing & returning a value from methods.

Syntax:

```
access Specifier return Type methodName (parameters) {  
    //  
    }  
    public / private /  
    protected / default  
    int / double /  
    void  
    variables passed  
    to method
```

```
class Test {  
    void name ( String inpName) {  
        System.out.println ("Name : " + inpName);  
    }  
    int sum (int a, int b) {  
        return a+b;  
    }  
}
```

```
public class Main {  
    public static void main ( String [ ] args) {  
        Test obj = new Test();  
        obj.name ("Prakul");  
        System.out.println (obj.sum (2, 3));  
    }  
}
```

3. Write about the use of constructor with example.

A constructor is a special method used to initialize the object's data members when an object is created.

It has the same name as class & does not have a return type.

It is automatically called when an object is created using new.

ex:-

```
class Student {
```

```
    String name;
```

```
    Student (String n) {
```

```
        name = n;
```

```
}
```

```
}
```

constructor

Platform: Open source Java programming tool like
Eclipse editor / netbeans / IntelliJ Idea.

Conclusion: Thus, studied what are classes, object creation,
methods, constructors, access specifiers.

FAQs

1. What is a class & object?

Sol: Class: A class is a blueprint or template
used to create objects. It defines
variables (data) & methods (functions).

Object: An object is a real-time instance
of a class. It represents a real-
world entity. & uses the class
properties.

2. What is a constructor in Java?

Soln: A constructor is a special method used to initialize objects.

It runs automatically whenever an object is created & it does not return anything.

- Its name is same as class name.
- It is called when using new keyword.

3. What is the default access specifier & what is its scope?

Soln: Default access specifier in Java, also called package - private, is applied when no access modifier is specified for a class, variable, or constructor.

It allows access only within the same package meaning all class inside that package can use it, but not from outside.

That means, its scope is limited to the same package.

4. What are the different access specifiers?

Soln: • Public: accessible from anywhere in the program, inside or outside the package.

- **Private:** Accessible only within the same class, not visible outside the class.
- **Protected:** Accessible within same package & outside package through inheritance only.
- **Default (package-private):** Accessible only within the same package, not visible outside the package.