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CT-1

Class: A class is a user-defined data type with a template that serves to define its properties. Once the class type has been defined, we can create "variables" of that type using declarations that are similar to the basic type declarations. The example of a class:

```
class class_name {  
    // class body  
}
```

where class body contains different types of variable and method.

```
class_name class_name {  
    // class body  
}
```


Object : An object in java is essentially a block of memory that contains space to store all the instance variable.

Objects in java are created using the new operator. The new operator creates an object of the specified class and returns a reference to that object. Here is an example of creating an object of type Rectangle

```
Rectangle rect1; //declare an object  
rect1 = new Rectangle();
```

//instantiating the object
i.e

```
class_name object_name;  
object_name = new class_name();
```

```
Example: class Rectangle {  
    int a, b;  
    int area(a, b) {  
        return a * b;  
    }  
    public static void main (String args[])  
    {  
        Rectangle rect1;  
        rect1 = new Rectangle();  
        rect1.area(5, 10);  
    }  
}
```


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Methods : In Java, methods are block of codes that perform specific task, and can be reused throughout the whole program.

The general form of a method declaration is:

```
type methodname (parameter list)
{
    method body;
}
```

Example : class Rectangle

```
{
    int length;
    int width;
    void get data (int x, int y)
    {
        length = x;
        width = y;
    }
}
```

Method names → get data

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Vector : Vector is a generic dynamic array ~~nam~~ that can hold objects of any type and any number. Vectors are created as follows:

```
Vector<int> v = new Vector<>();
```

// declaring vector
without size.

```
Vector<int> list = new Vector<>(3);
```

// declaring vector
with size.

Table 9.3 Important Vector Methods

Method Call	Task performed
<code>list.addElement(item)</code>	Adds the item specified to the list at the end
<code>list.elementAt(10)</code>	Gives the name of the 10th object
<code>list.size()</code>	Gives the number of objects present
<code>list.removeElement(item)</code>	Removes the specified item from the list
<code>list.removeElementAt(n)</code>	Removes the item stored in the nth position of the list
<code>list.removeAllElements()</code>	Removes all the elements in the list
<code>list.copy Into(array)</code>	Copies all items from list to array
<code>list.insertElementAt(item, n)</code>	Inserts the item at nth position