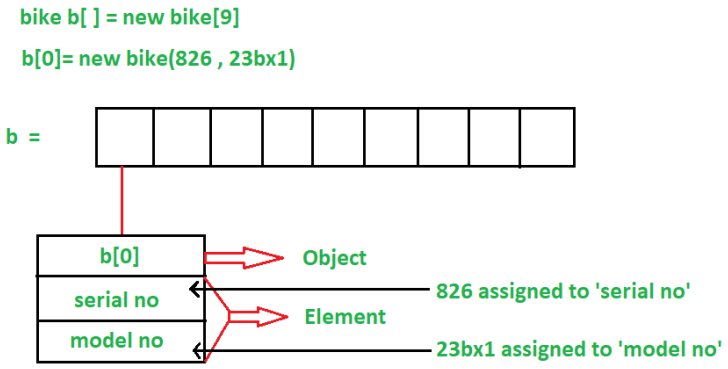
**Name – Prerna Sunil Jadhav** **SAP ID - 60004220127**

## Experiment No – 06(B)

**AIM: To implement Array of Objects (CO2)**

**THEORY:**




- The array of Objects the name itself suggests that it stores an array of objects.
- Unlike the traditional array stores values like String, integer, Boolean, etc an Array of Objects stores objects that mean objects are stored as elements of an array.
- Note that when we say Array of Objects it is not the object itself that is stored in the array but the reference of the object.

**CODE (i): WOOP to arrange the names of students in descending order of their total marks, input data consists of students details such as names, ID.no, marks of maths, physics, chemistry. (Use array of objects)**

Code1_Student.java

Exp6B > Code1_Student.java > Code1_Student > display(Student[])

```java
package Exp6B;
import java.util.Scanner;
public class Code1_Student {
    Run | Debug
    public static void main(String[] args) {
        System.out.println(x: "Prerna Sunil Jadhav - 60004220127\n");
        Scanner sc = new Scanner(System.in);
        System.out.print(s: "\nEnter the number of Students: ");
        int n = sc.nextInt();
        Student[] studArray = new Student[n];
        for (int i = 0; i < n; i++) {
            System.out.println("Details of Student " + (i + 1));
            System.out.print(s: "Enter ID: ");
            int id = sc.nextInt();
            System.out.print(s: "Enter name: ");
            String name = sc.next();
            System.out.print(s: "Enter Maths Marks: ");
            int maths = sc.nextInt();
            System.out.print(s: "Enter Physics Marks: ");
            int phy = sc.nextInt();
            System.out.print(s: "Enter Chemistry Marks: ");
            int chem = sc.nextInt();
            studArray[i] = new Student(id, maths, phy, chem, name);
        }
        System.out.println(x: "Marks in descending order:");
        display(studArray);
        sc.close();
    }
```

Code1_Student.java

Exp6B > Code1_Student.java > Student > Student(int, int, int, int, String)

```java
    public static void display(Student[] arr2) {
        int arr[] = new int[arr2.length];
        for(int i = 0; i<arr.length; i++){
            arr[i] = arr2[i].total;
        }
        for(int i = 1;i < arr2.length; i++) {
            int j = i;
            while(j > 0 && arr[j] < arr[j-1]) {
                int temp = arr[j];
                arr[j] = arr[j-1];
                arr[j-1] = temp;
                j--;
            }
        }
        int[] b = new int[arr2.length];
        int j = arr2.length;
        for (int i = 0; i < arr2.length; i++) {
            b[j - 1] = arr[i];
            j = j - 1;
        }

        for (int i: b) {
            for (Student s: arr2){
                if (s.total == i){
                    System.out.println(s.name+" "+i);
                }
            }
        }
    }
}

class Student {
    int total, id, maths, physics, chemistry;
    String name;

    Student(int id, int maths, int phy, int chem, String name) {
        this.id = id;
        this.maths = maths;
        this.physics = phy;
        this.chemistry = chem;
        this.name = name;
        this.total = this.id + this.maths + this.physics + this.chemistry;
    }
}
```

**OUTPUT:**

```
Prerna Sunil Jadhav - 60004220127


Enter the number of Students: 3
Details of Student 1
Enter ID: 1
Enter name: Prerna
Enter Maths Marks: 78
Enter Physics Marks: 98
Enter Chemistry Marks: 88
Details of Student 2
Enter ID: 2
Enter name: Diksha
Enter Maths Marks: 92
Enter Physics Marks: 70
Enter Chemistry Marks: 89
Details of Student 3
Enter ID: 3
Enter name: Krishna
Enter Maths Marks: 69
Enter Physics Marks: 89
Enter Chemistry Marks: 88
Marks in descending order:
Prerna 265
Diksha 253
Krishna 249
```

**CONCLUSION:**

- An object represents a single record in memory, and thus for multiple records, an array of objects must be created.
- It must be noted that the arrays can hold only references to the objects, and not the objects themselves.