

Java Collections Assignments (1–15) Programs with Output

Assignment 1: Store and Display Elements Using ArrayList

```
import java.util.ArrayList;

public class StudentNames {
    public static void main(String[] args) {
        ArrayList<String> students = new ArrayList<>();
        students.add("Ravi");
        students.add("Anita");
        students.add("Sunil");
        students.add("Priya");
        students.add("Aman");

        for(int i=0;i<students.size();i++) {
            System.out.println(students.get(i));
        }
    }
}

Output:
Ravi
Anita
Sunil
Priya
Aman
```

Assignment 2: Add and Remove Elements from ArrayList

```
import java.util.ArrayList;

public class AddRemove {
    public static void main(String[] args) {
        ArrayList<Integer> list = new ArrayList<>();
        list.add(10);
        list.add(20);
        list.add(30);
        list.add(40);
        list.add(50);

        list.remove(2);
        System.out.println(list);
    }
}

Output:
[10, 20, 40, 50]
```

Assignment 3: Find Size of Collection

```
import java.util.ArrayList;

public class CollectionSize {
    public static void main(String[] args) {
        ArrayList<String> cities = new ArrayList<>();
        cities.add("Delhi");
        cities.add("Mumbai");
        cities.add("Chennai");
        cities.add("Kolkata");

        System.out.println("Total cities: " + cities.size());
    }
}
```

```
}
```

Output:
Total cities: 4

Assignment 4: Iterate Collection Using for-each Loop

```
import java.util.ArrayList;

public class CourseList {
    public static void main(String[] args) {
        ArrayList<String> courses = new ArrayList<>();
        courses.add("Java");
        courses.add("Python");
        courses.add("C++");
        courses.add("HTML");
        courses.add("Spring");

        for(String c : courses) {
            System.out.println(c);
        }
    }
}

Output:
Java
Python
C++
HTML
Spring
```

Assignment 5: Check Element Exists in List

```
import java.util.ArrayList;

public class CheckFruit {
    public static void main(String[] args) {
        ArrayList<String> fruits = new ArrayList<>();
        fruits.add("Apple");
        fruits.add("Banana");
        fruits.add("Orange");

        System.out.println(fruits.contains("Apple"));
    }
}

Output:
true
```

Assignment 6: Store Unique Elements Using HashSet

```
import java.util.HashSet;

public class UniqueNumbers {
    public static void main(String[] args) {
        HashSet<Integer> set = new HashSet<>();
        set.add(10);
        set.add(20);
        set.add(10);
        set.add(30);

        System.out.println(set);
    }
}

Output:
[10, 20, 30]
```

Assignment 7: Display HashSet Elements

```
import java.util.HashSet;

public class Colors {
    public static void main(String[] args) {
        HashSet<String> colors = new HashSet<>();
        colors.add("Red");
        colors.add("Blue");
        colors.add("Green");

        for(String c : colors) {
            System.out.println(c);
        }
    }
}

Output:
Red
Blue
Green
```

Assignment 8: Basic Key-Value Storage Using HashMap

```
import java.util.HashMap;

public class EmployeeMap {
    public static void main(String[] args) {
        HashMap<Integer, String> map = new HashMap<>();
        map.put(101, "Ravi");
        map.put(102, "Anita");

        System.out.println(map.get(101));
    }
}

Output:
Ravi
```

Assignment 9: Display All Keys and Values from HashMap

```
import java.util.HashMap;
import java.util.Map;

public class CountryMap {
    public static void main(String[] args) {
        HashMap<String, String> map = new HashMap<>();
        map.put("IN", "India");
        map.put("US", "USA");
        map.put("UK", "United Kingdom");

        for(Map.Entry<String, String> e : map.entrySet()) {
            System.out.println(e.getKey() + " = " + e.getValue());
        }
    }
}

Output:
IN = India
US = USA
UK = United Kingdom
```

Assignment 10: Remove Entry from HashMap

```

import java.util.HashMap;

public class RemoveEmployee {
    public static void main(String[] args) {
        HashMap<Integer, String> map = new HashMap<>();
        map.put(1, "A");
        map.put(2, "B");
        map.remove(1);

        System.out.println(map);
    }
}

Output:
{2=B}

```

Assignment 11: Use LinkedList to Store Elements

```

import java.util.LinkedList;

public class LinkedListDemo {
    public static void main(String[] args) {
        LinkedList<Integer> list = new LinkedList<>();
        list.add(1);
        list.add(2);
        list.add(3);
        list.add(4);
        list.add(5);

        System.out.println(list);
    }
}

Output:
[1, 2, 3, 4, 5]

```

Assignment 12: Check Collection is Empty

```

import java.util.ArrayList;

public class IsEmptyDemo {
    public static void main(String[] args) {
        ArrayList<String> list = new ArrayList<>();
        System.out.println(list.isEmpty());
    }
}

Output:
true

```

Assignment 13: Clear All Elements from Collection

```

import java.util.ArrayList;

public class ClearList {
    public static void main(String[] args) {
        ArrayList<Integer> list = new ArrayList<>();
        list.add(1);
        list.add(2);
        list.clear();

        System.out.println(list);
    }
}

Output:

```

[]

Assignment 14: Store Different Data Types Using Wrapper Classes

```
import java.util.ArrayList;

public class WrapperDemo {
    public static void main(String[] args) {
        ArrayList<Integer> list = new ArrayList<>();
        list.add(10);
        list.add(20);

        System.out.println(list);
    }
}

Output:
[10, 20]
```

Assignment 15: Convert Collection to Array

```
import java.util.ArrayList;

public class ToArrayDemo {
    public static void main(String[] args) {
        ArrayList<String> list = new ArrayList<>();
        list.add("Java");
        list.add("Python");

        Object[] arr = list.toArray();
        for(Object o : arr) {
            System.out.println(o);
        }
    }
}

Output:
Java
Python
```