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Roll no: 41	**Tutorial No: 1**	
Title of LAB Assignment: Assignment based on collection		
DOP: 25-09-2023	**DOS:02-10-2023**	
CO Mapped: Co1,Co2	**PO Mapped:** PO3 ,PO6	**Signature:**

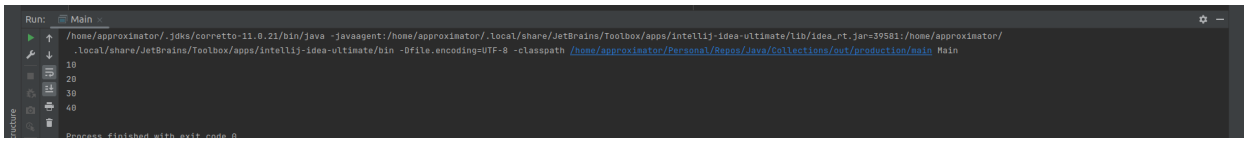
1. Create an ArrayList of type Integer, add element into it traverse the arraylist and print the elements

```
import java.util.ArrayList;

public class Main {
   public static void main(String[] args) {
       ArrayList<Integer> integerList = new ArrayList<>();
       integerList.add(10);
       integerList.add(20);
       integerList.add(30);
       integerList.add(40);
       for (Integer num : integerList) {
           System.out.println(num);
```

```
        }
    }
}
```

Output:



2. Create a LinkedList of type String, add 5 elements, and traverse the list from both sides:

```
import java.util.LinkedList;

public class ListAssignment2 {
    public static void main(String[] args) {
        LinkedList<String> stringList = new LinkedList<>();

        stringList.add("Apple");
        stringList.add("Banana");
        stringList.add("Cherry");
        stringList.add("Date");
        stringList.add("Elderberry");

        System.out.println("Traversing from front:");
        for (String fruit : stringList) {
            System.out.println(fruit);
        }

        System.out.println("Traversing from back:");
        for (int i = stringList.size() - 1; i >= 0; i--) {
            System.out.println(stringList.get(i));
        }
    }
}
```

Assignments on Set Interface

1. Write a Java program using Set interface containing a list of items and perform the following operations:

```
import java.util.HashSet;
import java.util.Set;

public class SetAssignment1 {
   public static void main(String[] args) {
        Set<String> set1 = new HashSet<>();
        Set<String> set2 = new HashSet<>();

        set1.add("Item 1");
        set1.add("Item 2");
        set1.add("Item 3");

        set2.add("Item 3");
        set2.add("Item 4");
        set2.add("Item 5");

        System.out.println("Set1: " + set1);
        set1.addAll(set2);
        System.out.println("After inserting set2 into set1: " + set1);
        set1.remove("Item 4");
        System.out.println("After removing 'Item 4': " + set1);
        boolean containsItem = set1.contains("Item 3");
        System.out.println("Does set1 contain 'Item 3'? " + containsItem);
   }
}
```

Output:

Assignment on Map Interface

1. Create a class Customer (Account_no Integer, Name String), Create a HashMap of type Customer, put elements, print elements, check if an element with account number 101 is present or not? What is the value for Customer 101.

Customer.java

```
class Customer {
   private Integer accountNo;
   private String name;

   public Customer(Integer accountNo, String name) {
       this.accountNo = accountNo;
       this.name = name;
   }

   public Integer getAccountNo() {
       return accountNo;
   }

   public String getName() {
       return name;
   }
}
```

MapAssignment1.java

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

public class MapAssignment1 {
   public static void main(String[] args) {
       Map<Integer, Customer> customerMap = new HashMap<>();

       customerMap.put(101, new Customer(101, "John"));
       customerMap.put(102, new Customer(102, "Alice"));
       customerMap.put(103, new Customer(103, "Bob"));

       System.out.println("Customer Map: " + customerMap);

       boolean containsKey = customerMap.containsKey(101);
       System.out.println("Is there a customer with Account No. 101? " +
containsKey);

       if (containsKey) {
           Customer customer = customerMap.get(101);
           System.out.println("Customer 101: " + customer.getName());
       }
   }
}
```

Output:


Run
MapAssignment1
/home/approximator/.jdks/corretto-11.0.21/bin/java -javaagent:/home/approximator/.local/share/JetBrains/Toolbox/apps/intellij-idea-ultimate/lib/idea_rt.jar=37613:/home/approximator/.local/share/JetBrains/Toolbox/apps/intellij-idea-ultimate/bin -Dfile.encoding=UTF-8 -classpath /home/approximator/Personal/Repos/Java/Collections/out/production/main MapAssignment1
Customer Map: {101=Customer@30c7da1e, 102=Customer@5b464ce8, 103=Customer@57829d67}
Is there a customer with Account No. 101? true
Customer 101: John
Process finished with exit code 0