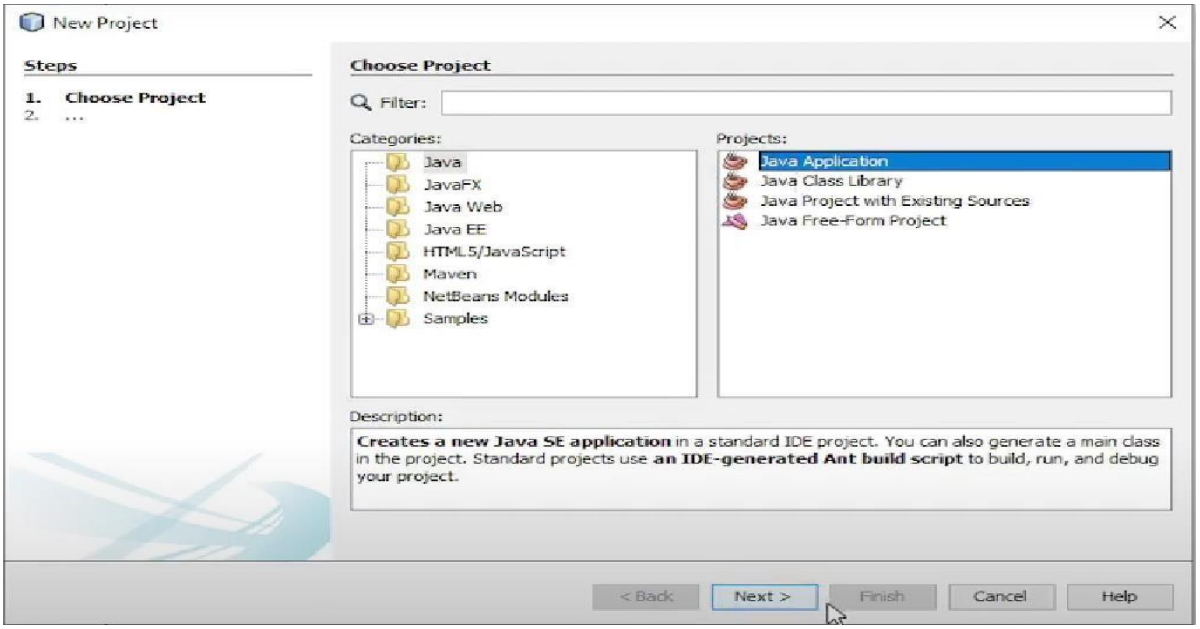
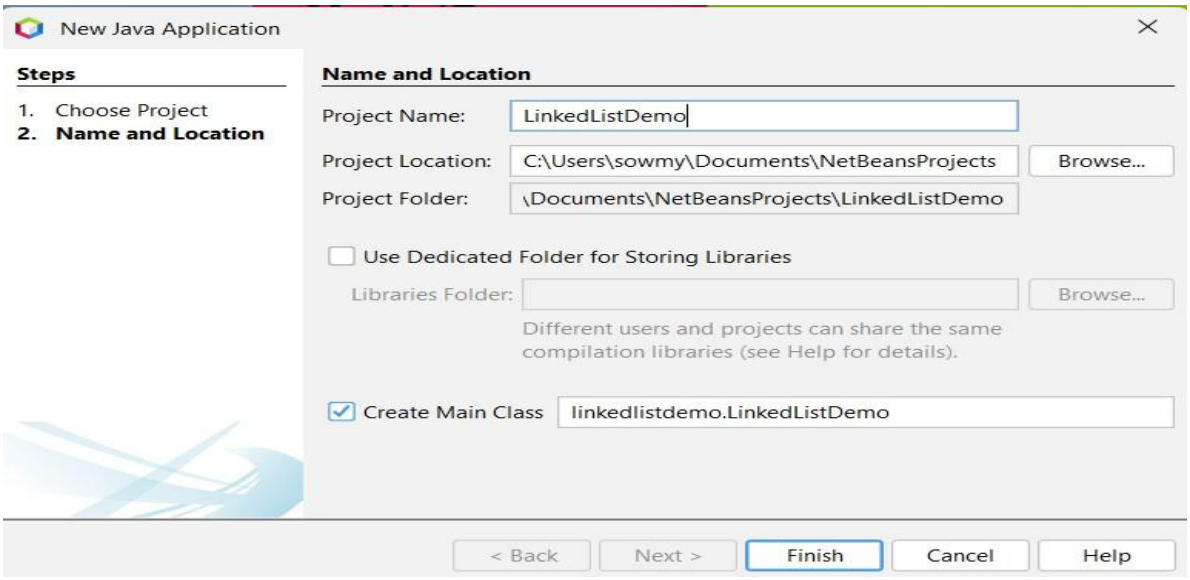
PART B

7)Write a menu driven program to create a linked list and perform the following operations.

a. **to Insert some Elements at the Specified Position**
b. **swap two elements in a linked list**
c. **to Iterate a LinkedList in Reverse Order**
d. **to Compare Two LinkedList**
e. **to Convert a LinkedList to ArrayList**





LinkedListDemo.java

```
package linkedlistdemo;

import java.util.ArrayList;
import java.util.Iterator;
import java.util.LinkedList;
import java.util.Scanner;

public class LinkedListDemo {

    public static void main(String[ ] args) {
        LinkedList<Integer>flist=new LinkedList<>();
        LinkedList<Integer>slist=new LinkedList<>();
        Scanner in=new Scanner(System.in);
        char choice='x';
        int num,pos,fpos,spos;
        do{
            System.out.println("MENU");
            System.out.println("--------------------");
            System.out.println("a.Insert a element: ");
            System.out.println("b.Swap element");
            System.out.println("c.Iterate in Reverse");
            System.out.println("d.Compare two list ");
            System.out.println("e.Convert to Array List");
            System.out.println("x.Exit");
```

```
System.out.println(" ---------------------");
System.out.print("Enter your choice-> ");
choice=in.next().toLowerCase().charAt(0);
switch(choice){
   case 'a':
    if(flist.size()>0){
       System.out.println("Elements in the list:"+flist);
    }else{
       System.out.println("List is empty");
    }
      System.out.print("Enter the position: ");
      pos=in.nextInt();
      if(pos<0){
      System.out.println("Eroor! Enter a positive position number");
      }else if((flist.size()>0 && pos<=flist.size()+1) || (pos==1)){
         System.out.print("Enter a number: ");
         num=in.nextInt();
         flist.add(pos-1, num);
     System.out.println("Element" +num+ "is inserted at position" +pos);
      }else{
         System.out.println("Enter proper position value");
      }
      break;
```

```
        case 'b':
        System.out.println("Original List is "+flist);
System.out.println("Enter the position of the elements to be swapped");
        System.out.print("First element position: ");
        fpos=in.nextInt();
        System.out.print("Second element position: ");
        spos=in.nextInt();
        if(fpos<=0 && spos<=0){
        System.out.println("Error!Use positive value for positions");
        }else if((fpos>flist.size()) && (spos>flist.size())){
        System.out.println("Error!Enter the proper value for position");
        }else{
           int n1=flist.get(fpos-1);
           int n2=flist.get(spos-1);
           flist.set(spos-1, n1);
           flist.set(fpos-1, n2);
           System.out.println("Elements are swapped");
           System.out.println("New list is"+flist);
        }
        break;

         case 'c' :
        System.out.println("Original List is"+flist);
        System.out.print("reverse List is [");
       for(Iterator it=flist.descendingIterator();it.hasNext();){
        System.out.print(it.next()+" ");
```

```
            }
             System.out.println("]");
             break;

              case 'd':
                slist=(LinkedList<Integer>) flist.clone();
                slist.add(999);
                if(flist.equals(slist)){
                   System.out.println("List are equal");
                }else{
                   System.out.println("Lists are not equal");
                }
                break;
             case 'e':
                ArrayList<Integer>alst=new ArrayList<>(flist);
                System.out.println("Elements in the Array List are:");
                System.out.println(alst);
                break;

          case 'x':
             System.out.println("Thank you");
             return;
          default:
             System.out.println("Wrong choice.....\nTry Again!");
       }
    }while(true);
```

```
    }


}
```

Output:

```
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> a
List is empty
Enter the position: 1
Enter a number: 10
Element10is inserted at position1
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> a
Elements in the list:[10]
Enter the position: 2
Enter a number: 25
Element25is inserted at position2
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> a
```

```
Elements in the list:[10, 25]
Enter the position: 3
Enter a number: 30
Element30is inserted at position3
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> b
Original List is [10, 25, 30]
Enter the position of the elements to be swapped
First element position: 1
Second element position: 2
Elements are swapped
New list is[25, 10, 30]
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> c
Original List is[25, 10, 30]
reverse List is [30 10 25 ]
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> d
Lists are not equal
MENU
```

```
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> e
Elements in the Array List are:
[25, 10, 30]
MENU
------------------------------
a.Insert a element:
b.Swap element
c.Iterate in Reverse
d.Compare two list
e.Convert to Array List
x.Exit
------------------------------
Enter your choice-> x
Thank you
```