Java Collection: LinkedList Exercises

1. Write a Java program to append the specified element to the end of a linked list.

```
import java.util.*;

class ques1

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("Aman");

		ll.add("Ajay");

		ll.add("Aishwarya");

		ll.add("Abhijeet");

		ll.add("Amol");

		ll.add("Aakash");

		System.out.println(ll);

	}

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques1.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques1
[Aman, Ajay, Aishwarya, Abhijeet, Amol, Aakash]
```

2. Write a Java program to iterate through all elements in a linked list.

import java.util.*;

```
class ques2
{
	public static void main(String args[])
	{
		LinkedList<String> ll = new LinkedList<>();
		ll.add("Monday");
		ll.add("Tuesday");
		ll.add("Wednesday");
		ll.add("Thursday");
		ll.add("Friday");
		ll.add("Saturday");
		ll.add("Sunday");

		Iterator i = ll.iterator();
		while(i.hasNext())
		{
			System.out.println(i.next());
		}
```

```
    }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques2.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques2
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
```

3. Write a Java program to iterate through all elements in a linked list starting at the specified position.

```
import java.util.*;

class ques3

{

    public static void main(String args[])

    {

        LinkedList<String> ll = new LinkedList<>();

        Scanner sc = new Scanner(System.in);

        ll.add("Aman");

        ll.add("Ajay");

        ll.add("Aishwarya");

        ll.add("Abhijeet");

        ll.add("Amol");
```

```
            ll.add("Aakash");
            System.out.println(ll);
            System.out.println("Enter a specified position");
            int p = sc.nextInt();
            for(int i=p;i<ll.size();i++)
            {
                System.out.println(ll.get(i));
            }
        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques3.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques3
[Aman, Ajay, Aishwarya, Abhijeet, Amol, Aakash]
Enter a specified position
3
Abhijeet
Amol
Aakash
```

4. Write a Java program to iterate a linked list in reverse order.

```
import java.util.*;
class ques4
{
    public static void main(String args[])
    {
        LinkedList<String> ll = new LinkedList<>();
```

```
                ll.add("Monday");

                ll.add("Tuesday");

                ll.add("Wednesday");

                ll.add("Thursday");

                ll.add("Friday");

                ll.add("Saturday");

                ll.add("Sunday");



                Iterator i = ll.descendingIterator();



                while(i.hasNext())

                {

                        System.out.println(i.next());

                }

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques4.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques4
Sunday
Saturday
Friday
Thursday
Wednesday
Tuesday
Monday
```

5. Write a Java program to insert the specified element at the specified position in the linked list

```
import java.util.*;

class ques5

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("Doraemon");

		ll.add("Schinchan");

		ll.add("Ninja Hattori");

		ll.add("Perman");

		ll.add("Kiteretsu");



		System.out.println(ll);

		ll.add(2,"Mickey");



		System.out.println(ll);

	}

}
```

```
Microsoft Windows [Version 10.0.19044.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques5.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques5
[Doraemon, Schinchan, Ninja Hattori, Perman, Kiteretsu]
[Doraemon, Schinchan, Mickey, Ninja Hattori, Perman, Kiteretsu]
```

6. Write a Java program to insert elements into the linked list at the first and last position.

```
import java.util.*;

class ques6

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		Scanner sc = new Scanner(System.in);

		ll.add("Jan");

		ll.add("Feb");

		ll.add("Mar");

		ll.add("Apr");



		System.out.println(ll);

		System.out.println("Enter element to insert at first and last position");

		String x = sc.nextLine();

		ll.add(0,x);

		ll.add(ll.size(),x);
```

```
        System.out.println(ll);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques6.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques6
[Jan, Feb, Mar, Apr]
Enter element to insert at first and last position
Blah
[Blah, Jan, Feb, Mar, Apr, Blah]
```

7. Write a Java program to insert the specified element at the front of a linked list.

```
import java.util.*;

class ques7

{

    public static void main(String args[])

    {

        LinkedList<String> ll = new LinkedList<>();

        Scanner sc = new Scanner(System.in);

        ll.add("Jan");

        ll.add("Feb");

        ll.add("Mar");

        ll.add("Apr");



        System.out.println(ll);

        System.out.println("Enter element to insert at first position");
```

```
        String x = sc.nextLine();

        ll.add(0,x);

        System.out.println(ll);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques7
[Jan, Feb, Mar, Apr]
Enter element to insert at first position
Yo
[Yo, Jan, Feb, Mar, Apr]
```

8. Write a Java program to insert the specified element at the end of a linked list.

```
import java.util.*;

class ques8

{

    public static void main(String args[])

    {

        LinkedList<String> ll = new LinkedList<>();

        Scanner sc = new Scanner(System.in);

        ll.add("Jan");

        ll.add("Feb");

        ll.add("Mar");

        ll.add("Apr");
```

```
            System.out.println(ll);

            System.out.println("Enter element to insert at last position");

            String x = sc.nextLine();



            ll.add(ll.size(),x);

            System.out.println(ll);

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques8
[Jan, Feb, Mar, Apr]
Enter element to insert at last position
Sup
[Jan, Feb, Mar, Apr, Sup]
```

9. Write a Java program to insert some elements at the specified position into a linked list.

```
import java.util.*;




class ques9

{

        public static void main(String args[])

        {
```

```
        LinkedList<String> ll = new LinkedList<>();

        Scanner sc = new Scanner(System.in);

        ll.add("Jan");

        ll.add("Feb");

        ll.add("Mar");

        ll.add("Apr");



        System.out.println(ll);

        System.out.println("Enter Specific Position");

        int y = sc.nextInt();

        System.out.println("Enter element to insert at specific position");

        String x = sc.nextLine();

        x = sc.nextLine();



        ll.add(y,x);

        System.out.println(ll);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques9
[Jan, Feb, Mar, Apr]
Enter Specific Position
2
Enter element to insert at specific position
Tea
[Jan, Feb, Tea, Mar, Apr]
```

10. Write a Java program to get the first and last occurrence of the specified elements in a linked list.

```
import java.util.*;

class ques10

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("CocoCola");

		ll.add("Pepsi");

		ll.add("ThumbsUp");

		ll.add("Fanta");

		ll.add("Sprite");



		System.out.println(ll);



		System.out.println("First Occurence :" + ll.getFirst());

		System.out.println("Last Occurence : " + ll.getLast());

	}

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques10.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques10
[CocoCola, Pepsi, ThumbsUp, Fanta, Sprite]
First Occurence :CocoCola
Last Occurence : Sprite
```

11. Write a Java program to display the elements and their positions in a linked list.

```
import java.util.*;

class ques11

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("CocoCola");

		ll.add("Pepsi");

		ll.add("ThumbsUp");

		ll.add("Fanta");

		ll.add("Sprite");

		for(int i=0;i<ll.size();i++)

		{

			System.out.println(i +"->" + ll.get(i));

		}

	}

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques11.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques11
0->CocoCola
1->Pepsi
2->ThumbsUp
3->Fanta
4->Sprite
```

12. Write a Java program to remove a specified element from a linked list.

```
import java.util.*;

class ques12

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("CocoCola");

		ll.add("Pepsi");

		ll.add("ThumbsUp");

		ll.add("Fanta");

		ll.add("Sprite");

		System.out.println(ll);

		ll.remove(3);

		System.out.println("Removed Element at Index 3");

		System.out.println(ll);

	}

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques12.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques12
[CocoCola, Pepsi, ThumbsUp, Fanta, Sprite]
Removed Element at Index 3
[CocoCola, Pepsi, ThumbsUp, Sprite]
```

13. Write a Java program to remove the first and last element from a linked list.

```
import java.util.*;

class ques13

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("CocoCola");

		ll.add("Pepsi");

		ll.add("ThumbsUp");

		ll.add("Fanta");

		ll.add("Sprite");

		System.out.println(ll);

		ll.removeFirst();

		ll.removeLast();

		System.out.println("Removed Element at First and Last Position");
```

```
        System.out.println(ll);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques13
[CocoCola, Pepsi, ThumbsUp, Fanta, Sprite]
Removed Element at First and Last Position
[Pepsi, ThumbsUp, Fanta]

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

14. Write a Java program to remove all the elements from a linked list.

```
import java.util.*;

class ques14

{

    public static void main(String args[])

    {

        LinkedList<String> ll = new LinkedList<>();

        ll.add("CocoCola");

        ll.add("Pepsi");

        ll.add("ThumbsUp");

        ll.add("Fanta");

        ll.add("Sprite");




        System.out.println(ll);
```

```
        ll.removeAll(ll);

        System.out.println("Thanos Snapped his fingers");

        System.out.println(ll);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques14.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques14
[CocoCola, Pepsi, ThumbsUp, Fanta, Sprite]
Thanos Snapped his fingers
[]

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

15. Write a Java program of swap two elements in a linked list.

```
import java.util.*;

class ques15

{

    public static void main(String args[])

    {

        LinkedList<String> ll = new LinkedList<>();

        ll.add("CocoCola");

        ll.add("Pepsi");

        ll.add("ThumbsUp");

        ll.add("Fanta");

        ll.add("Sprite");
```

```
            System.out.println(ll);

            System.out.println("I am Swapper Man bow before me!!!");

            Collections.swap(ll, 0, 2);

            System.out.println(ll);

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques15
[CocoCola, Pepsi, ThumbsUp, Fanta, Sprite]
I am Swapper Man bow before me!!!
[ThumbsUp, Pepsi, CocoCola, Fanta, Sprite]
```

16. Write a Java program to shuffle the elements in a linked list.

```
import java.util.*;

class ques16

{

        public static void main(String args[])

        {

            LinkedList<String> ll = new LinkedList<>();



            ll.add("IBM");

            ll.add("Apple");

            ll.add("Google");
```

```
        ll.add("Tata");
        ll.add("Infosys");
        System.out.println(ll);
        Collections.shuffle(ll);
        System.out.println(ll);
    }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques16.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques16
[IBM, Apple, Google, Tata, Infosys]
[IBM, Apple, Infosys, Google, Tata]
```

17. Write a Java program to join two linked lists.

```
import java.util.*;
class ques17
{
    public static void main(String args[])
    {
        LinkedList<String> ll1 = new LinkedList<>();

        ll1.add("Batman");
        ll1.add("Superman");
```

```
        ll1.add("Flash");

        ll1.add("The Punisher");

        ll1.add("Arrow");

        ll1.add("Wonder Woman");



        LinkedList<String> ll2 = new LinkedList<>();



        ll2.add("Spiderman");

        ll2.add("IronMan");

        ll2.add("Captain America");

        ll2.add("Thor");

        System.out.println("1>" + ll1);

        System.out.println("2>" + ll2);

        ll1.addAll(ll2);

        System.out.println("1> 2>" + ll1);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques17
1>[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]
2>[Spiderman, IronMan, Captain America, Thor]
1> 2>[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman, Spiderman, IronMan, Captain America, Thor]

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

18. Write a Java program to clone an linked list to another linked list.

```
import java.util.*;

class ques18

{

	public static void main(String args[])

	{

		LinkedList<String> ll1 = new LinkedList<>();



		ll1.add("Batman");

		ll1.add("Superman");

		ll1.add("Flash");

		ll1.add("The Punisher");

		ll1.add("Arrow");

		ll1.add("Wonder Woman");

		System.out.println("Original" + ll1);

		LinkedList<String> ll2 = new LinkedList<>();

		ll2 = (LinkedList)ll1.clone();



		System.out.println("Cloned"+ll2);
```

```
    }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques18
Original[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]
Cloned[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

19. Write a Java program to remove and return the first element of a linked list.

```
import java.util.*;

class ques19

{

    public static void main(String args[])

    {

        LinkedList<String> ll1 = new LinkedList<>();



        ll1.add("Batman");

        ll1.add("Superman");

        ll1.add("Flash");

        ll1.add("The Punisher");

        ll1.add("Arrow");

        ll1.add("Wonder Woman");
```

```
        System.out.println("Original" + ll1);

        System.out.println("Removed Element "+ll1.remove(0));

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques19
Original[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]
Removed ElementBatman
```

20. Write a Java program to retrieve but does not remove, the first element of a linked list.

```
import java.util.*;

class ques20

{

    public static void main(String args[])

    {

        LinkedList<String> ll1 = new LinkedList<>();

        ll1.add("Batman");

        ll1.add("Superman");

        ll1.add("Flash");

        ll1.add("The Punisher");

        ll1.add("Arrow");

        ll1.add("Wonder Woman");

        System.out.println("Original" + ll1);
```

```
            System.out.println("First Element "+ll1.getFirst());

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques20.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques20
Original[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]
First Element Batman

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

21. Write a Java program to retrieve but does not remove, the last element of a linked list.

```
import java.util.*;

class ques21

{

        public static void main(String args[])

        {

                LinkedList<String> ll1 = new LinkedList<>();

                ll1.add("Batman");

                ll1.add("Superman");

                ll1.add("Flash");

                ll1.add("The Punisher");

                ll1.add("Arrow");

                ll1.add("Wonder Woman");
```

```
        System.out.println("Original" + ll1);

        System.out.println("Last Element "+ll1.getLast());

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques21.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques21
Original[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]
Last Element Wonder Woman

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

22. Write a Java program to check if a particular element exists in a linked list.

```
import java.util.*;

class ques22

{

    public static void main(String args[])

    {

        LinkedList<String> ll1 = new LinkedList<>();



        ll1.add("Batman");

        ll1.add("Superman");
```

```
        ll1.add("Flash");
        ll1.add("The Punisher");
        ll1.add("Arrow");
        ll1.add("Wonder Woman");
        if(ll1.contains("Flash"))
        {
            System.out.println("Flash Exist in our Linked List");
        }
        else
        {
            System.out.println("Flash does not contain in our Linked List");
        }
        System.out.println("Original" + ll1);
    }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques22
Flash Exist in our Linked List
Original[Batman, Superman, Flash, The Punisher, Arrow, Wonder Woman]
```

23. Write a Java program to convert a linked list to array list.

```
import java.util.*;

class ques23

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("Water");

		ll.add("Fire");

		ll.add("Soil");

		ll.add("Space");

		ll.add("Time");

		System.out.println("LinkedList : "+ll);

		ArrayList<String> al = new ArrayList<>(ll);

		System.out.println("ArrayList : "+al);

	}

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques23.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques23
LinkedList : [Water, Fire, Soil, Space, Time]
ArrayList : [Water, Fire, Soil, Space, Time]

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

24. Write a Java program to compare two linked lists.

```
import java.util.*;

class ques24

{

	public static void main(String args[])

	{

		LinkedList<String> ll = new LinkedList<>();

		ll.add("Water");

		ll.add("Fire");

		ll.add("Soil");

		ll.add("Space");

		ll.add("Time");



		System.out.println("LinkedList : "+ll);



		LinkedList<String> ll2 = new LinkedList<>();

		ll2.add("Water");

		ll2.add("Fire");

		ll2.add("Soil");

		ll2.add("Space");
```

```
        ll2.add("Blah");
        System.out.println("LinkedList : "+ll2);
        Iterator i = ll.iterator();
        ArrayList<String> ar = new ArrayList<>();
        while(i.hasNext())
        {
            ar.add(ll2.contains(i.next()) ? "Yup" : "Nope");
        }
        System.out.println(ar);
    }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques24.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques24
LinkedList : [Water, Fire, Soil, Space, Time]
LinkedList : [Water, Fire, Soil, Space, Blah]
[Yup, Yup, Yup, Yup, Nope]

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

25. Write a Java program to test whether a linked list is empty or not.

```
import java.util.*;
class ques25
{
```

```
	public static void main(String args[])
	{
		LinkedList<String> ll = new LinkedList<>();
		ll.add("Water");
		ll.add("Fire");
		ll.add("Soil");
		ll.add("Space");
		ll.add("Time");
		System.out.println("LinkedList : "+ll);
		System.out.println("Is Empty: " + ll.isEmpty());
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques25.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques25
LinkedList : [Water, Fire, Soil, Space, Time]
Is Empty: false

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>
```

26. Write a Java program to replace an element in a linked list.

```
import java.util.*;
class ques26
{
	public static void main(String args[])
```

```
	{
		LinkedList<String> ll = new LinkedList<>();


		ll.add("Micromax");
		ll.add("Microsoft");
		ll.add("Mi");
		ll.add("Motorola");
		ll.add("Oppo");


		System.out.println(ll);
		ll.set(4,"Android");
		System.out.println(ll);


	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>javac ques26.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\Linked List>java ques26
[Micromax, Microsoft, Mi, Motorola, Oppo]
[Micromax, Microsoft, Mi, Motorola, Android]
```