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//MCQ's

1. C)
2. B)
3. C)
4. A)
5. E)
6. A)
7. A)
8. A)
9. A)
10. A)
11. A)
12. C)
13. B)
14. C)
15. B)
16. C)
17. D)
18. A)
19. D)
20. C)
21. D)
22. B)
23. A)
24. C)
25. Gg
26. A)
27. C)
28. D)
29. A)
30. A)

37) **Leap year**

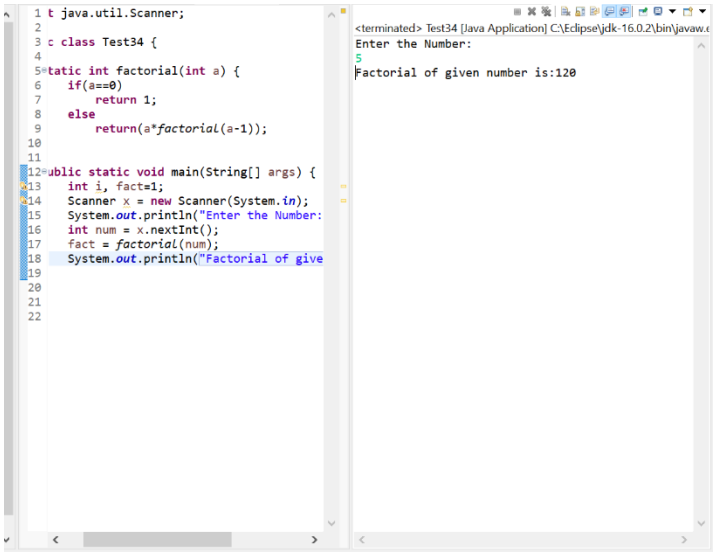
```
import java.util.Scanner;

public class Test37 {

	public static void main(String[] args) {
		Scanner x = new Scanner(System.in);
		System.out.println("Enter the year:");
		int year = x.nextInt();

		if(year%4==0) {
			if(year%100==0) {
				if(year%400==0) {
```

```
                        System.out.println("Its a leap year");
                    }else {
                        System.out.println("Not a leap year");
                    }
                }else
                    System.out.println("Its a leap year");
            }else
                System.out.println("Not a leap year");

    }

}
```

34) Factorial

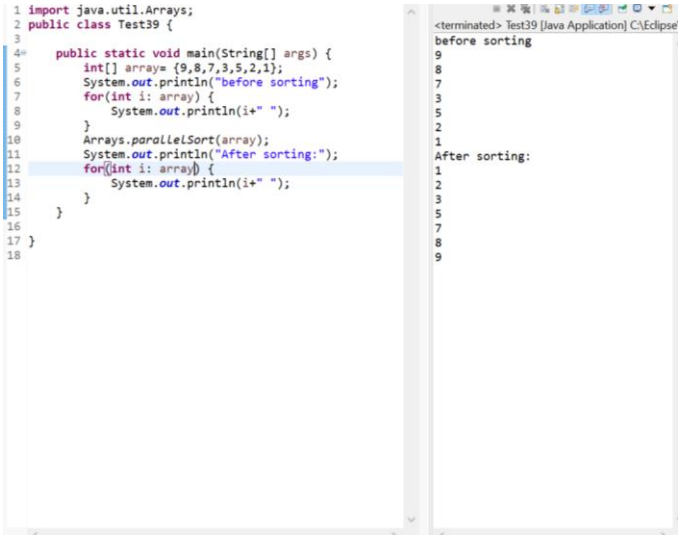
```
import java.util.Scanner;

public class Test34 {

        static int factorial(int a) {
                if(a==0)
```

```
                return 1;
        else
                return(a*factorial(a-1));
    }

    public static void main(String[] args) {
        int i, fact=1;
        Scanner x = new Scanner(System.in);
        System.out.println("Enter the Number:");
        int num = x.nextInt();
        fact = factorial(num);
        System.out.println("Factorial of given number is:"+fact);
    }

}
```



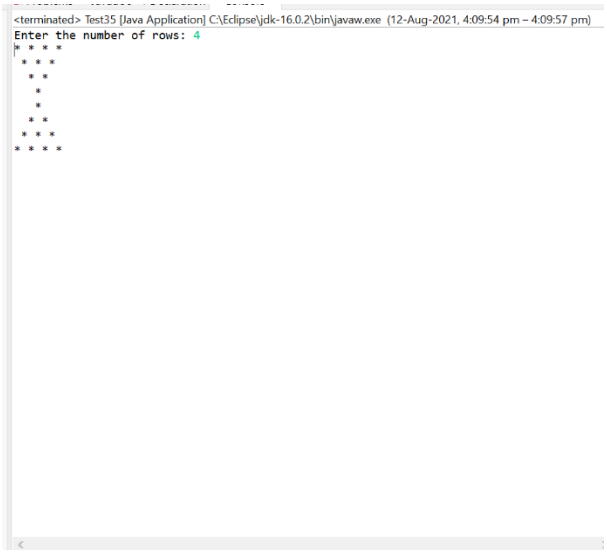
39) Parallel Sort

```
import java.util.Arrays;
public class Test39 {

    public static void main(String[] args) {
        int[] array= {9,8,7,3,5,2,1};
        System.out.println("before sorting");
        for(int i: array) {
            System.out.println(i+" ");
        }
        Arrays.parallelSort(array);
        System.out.println("After sorting:");
        for(int i: array) {
            System.out.println(i+" ");
        }
    }

}
```



35)Pattern printing

```
import java.util.Scanner;
public class Test35 {

	public static void main(String[] args) {
		int i,j,k,a;
		Scanner sc =new Scanner(System.in);
		System.out.println("Enter the number of rows:");
		a = sc.nextInt();
		for(i=0;i<=a-1;i++) {
			for(j=0;j<i;j++) {
				System.out.print(" ");
			}
			for(k=0;k<a-1;k++) {
				System.out.println("*" + " ");
			}
			System.out.println("");
		}

		for(i=a-1;i>=0;i--) {
			for(j=0;j<i;j++) {
				System.out.print(" ");
			}
			for(k=i;k<=a-1;k++) {
				System.out.println("*" + " ");
			}
			System.out.println("");
		}

		sc.close();

	}

}
```

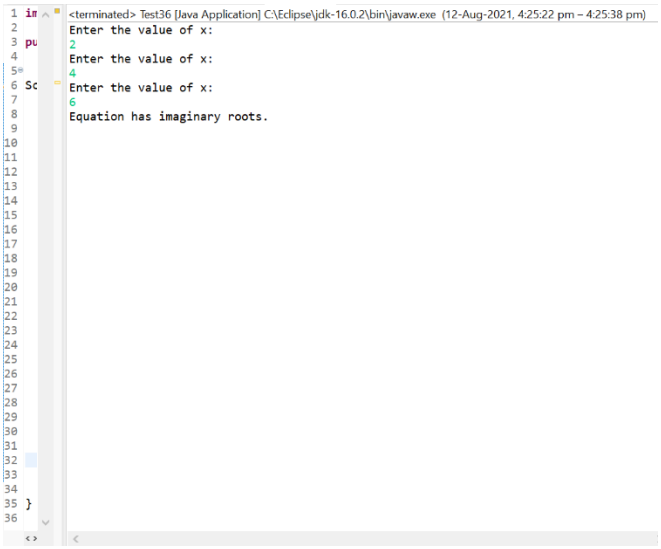


32)Duplicate Removal

```
public class Test32 {

	public static int DuplicateElementsRemoval(int arr[], int n){
	  if (n==0 || n==1){
	      return n;
	  }
	  int i = 0;
	  for (int j=0; j< n-1; j++){
	      if (arr[j] != arr[j+1]){
	          arr[i++] = arr[j];
	      }
	  }
	  arr[i++] = arr[n-1];
	  return i;
    }

	public static void main(String[] args) {
		int arr[] = {10,2,20,3,5,40,50,10,50,3,7,5,3};
		 int length = arr.length;
		 length = DuplicateElementsRemoval(arr, length);
		 for (int k=0; k<length; k++)
		    System.out.print(arr[k]+" ");

	}

}
```

36) Quadratic

```
import java.util.Scanner;

public class Test36 {

	public static void main(String[] args) {
Scanner x = new Scanner(System.in);

		System.out.println("Enter the value of x:");
		long a = x.nextLong();

		System.out.println("Enter the value of x:");
		long b = x.nextLong();

		System.out.println("Enter the value of x:");
		long  c = x.nextLong();

		double res = b*b - 4 * a* c;


		if(res>0.0) {
			double r1 =(-b + Math.pow(res, 0.5))/(2.0*a);
			double r2 =(-b - Math.pow(res, 0.5))/(2.0*a);
			System.out.println("The roots are " +r1+ "and" +r2);
		}
		else if(res==0.0) {
			double r1 = -b/(2.0 *a);
			System.out.println("The root is " +r1);
		}
		else {
			System.out.println("Equation has imaginary roots.");
		}

	}

}
```



31)Finding common elements

```
import java.util.Arrays;
import java.util.HashSet;

public class Test31 {

	public static void main(String[] args) {
		Integer[] i1 = {1,2,3,4,5};

	 Integer[] i2 = {3,4,5,6,7,8};
	 HashSet<Integer> set = new HashSet<>(Arrays.asList(i1));



	  for (int i = 0; i < i1.length; i++)
	  {
	      for (int j = 0; j < i2.length; j++)
	      {
	          if(i1[i].equals(i2[j]))
	          {
	              set.add(i1[i]);
	          }
	      }
	  }

	  System.out.println(set);

	}

}
```

Or

```
public class Test31 {

	public static void main(String[] args) {
		 int[] arr1 = {1,2,3,4,5};
		int[] arr2 = {3,4,5,6,7,8};

		for(int i = 0;i < arr1.length; i++) {
		   for(int j = 0; j < arr2.length; j++) {
```

```
                    if(arr1[i] == arr2[j]) {
                        System.out.println(arr1[i]);
                    }
                }
            }
        }

}
```