Version A

Version B

Version C

Version D

Version E

Version F

Version G

Points

Version A

Lottery class

```java
package VersionA;

import java.util.ArrayList;
import java.util.List;
import java.util.Random;

public class Lottery {
        int [] lotteryNumbers = new int[5];
        List<Integer> a1 = new ArrayList<Integer>();

        public Lottery() {
                Random rn = new Random();
                for(int i = 0; i < 5; i++) {
                        lotteryNumbers[i] = rn.nextInt(9);
                }
        }

        public void lottery(int[] userSent) {
                int [] user = new int [5];
                user = userSent;

                for(int j = 0; j < 5; j++) {
```

```java
                    if(user[j] == lotteryNumbers[j]) {
                            a1.add(lotteryNumbers[j]);
                    }
            }
            System.out.println("User lottery: ");
            for(int j = 0; j < 5; j++) {
                    System.out.print(lotteryNumbers[j] + "\t");
                    }
            System.out.println("");
            System.out.println("Lottery Number: ");
            for(int j = 0; j < 5; j++) {
                    System.out.print(user[j] + "\t");
                    }
            System.out.println("");

            System.out.println("Matching digits are: ");
            for(Integer x: a1) {
                    System.out.print(x + "\t");
            }
            }

    }
```

Main

```java
package VersionA;

public class Main {

    public static void main(String[] args) {

            int [] arr1 = {1,2,3,4,5};

            Lottery l1 = new Lottery();

            l1.lottery(arr1);

    }

}
```

Version B

```java
package VB;

import java.util.Random;

interface Alien{
        public int getScore();
}

class MashmalloAlien implements Alien{
        public int getScore() {
```

```java
                return 15;
        }
}

class OgreAlien implements Alien{
        public int getScore() {
                return 10;
        }
}

class snakeAlien implements Alien{
        public int getScore() {
                return 5;
        }
}

class AlienPack{
        private Alien alienArray[];

        public AlienPack(int x) {
                alienArray = new Alien[x];
        }

        public void addAlien(Alien alien, int index) {
                alienArray[index-1] = alien;
        }

        public Alien[] getAliens() {
                return alienArray;
        }
}

class MenInBlack{

        protected int score;
        protected AlienPack alienPack;

        public MenInBlack(AlienPack pack) {
                score = 0;
                alienPack = pack;
        }
        public int getScore() {
                return score;
        }

        public void setScore(int score) {
                this.score = score;
        }

        public AlienPack getAlienPack() {
                return alienPack;
```

```java
        }

        public void setAlienPack(AlienPack alienPack) {
                this.alienPack = alienPack;
        }

        public int kill() {
                for(Alien alien : alienPack.getAliens()) {
                        score = score + alien.getScore();
                }

                return score;
        }
}

class MenInBlack2 extends MenInBlack{

        public MenInBlack2(AlienPack pack) {
                super(pack);
        }

        public int kill() {
                for(Alien alien : alienPack.getAliens()) {
                        score = score + alien.getScore();
                        Random random = new Random();
                        int r = random.nextInt();
                        if(r%2!=0) {
                                score = score - 2;
                        }
                }
                return score;
        }


}
public class versionB {
        public static void main(String args[]) {
                AlienPack pack1 = new AlienPack(5);
                pack1.addAlien(new MashmalloAlien(),1);
                pack1.addAlien(new OgreAlien(),2);
                pack1.addAlien(new OgreAlien(),3);
                pack1.addAlien(new snakeAlien(),4);
                pack1.addAlien(new MashmalloAlien(),5);

                MenInBlack AgentK = new MenInBlack(pack1);
                AgentK.kill();
                System.out.println("Your socre is" + AgentK.getScore());
        }
}
```

Version C

RandNum class

```java
package VersionC;

import java.util.Random;

public class RandNum {
        int [][] myarray = new int[5][5];
        int maximum;
        int minimum;
        double average;

        Random rn = new Random();

        public RandNum() {
                for(int i = 0; i < 5; i++) {
                        for(int j = 0; j < 5; j++) {

                                int no = rn.nextInt(100);
                                myarray[i][j] = no;
                        }
                }
        }
        public void calculateValues() {
                int tot = 0;
                double avg = 0;
                int min = 100;
                int max = 0;
                //to calculate the average
                for(int i = 0; i < 5; i++) {
                        for(int j = 0; j < 5; j++) {
                                tot += myarray[i][j];
                                avg = (double)tot / 25;
                        }
                }
                this.average = avg;

                //find the minimum number
                for(int i = 0; i < 5; i++) {
                        for(int j = 0; j < 5; j++) {
                                if(myarray[i][j] < min) {
                                        min = myarray[i][j];
                                }
                        }
                }
                this.minimum = min;
                //find the maximum number
                        for(int i = 0; i < 5; i++) {
                                for(int j = 0; j < 5; j++) {
                                        if(myarray[i][j] > max) {
                                                max = myarray[i][j];
                                        }
                                }
```

```java
                }
                this.maximum = max;
        }

        public void display() {
                System.out.println("The average is : " + this.average + " and the min is " + this.minimum + " and max
is " + this.maximum);
        }

}
```

Main

```java
package VersionC;


public class Main {

        public static void main(String[] args) {
                RandNum rn = new RandNum();
                rn.calculateValues();
                rn.display();
        }

}
```

Version D

```java
public class charArray {

        //variable declaration
        char mycharArray[] ;

        //constructor
        public charArray(char [] mycharArray){
                this.mycharArray = mycharArray ;
        }

        public void swapFirstAndLast(){

                char m = mycharArray[0];
                mycharArray[0] = mycharArray[mycharArray.length -1] ;
                mycharArray[mycharArray.length -1] = m ;
        }

        public void DisplayArray(){

                for(int i = 0 ; i < mycharArray.length ; i++) {
                        System.out.println(mycharArray[i] + " ");
                }
        }
```

```java
        public void DisplayString() {
                System.out.println(String.valueOf(mycharArray));
        }
}

package quz2;

public class charMain {

        public static void main(String[] args) {

                char A[] = {'a','b' , 'c','d' };
                //char A[] = new char [4];

                charArray c = new charArray(A);

                c.DisplayString();
                c.swapFirstAndLast();
                c.DisplayArray();
                c.DisplayString();
        }
}
```

Version E

```java
public class invalidITNumberException extends Exception{

        //public invalidITNumberException() {}
        public invalidITNumberException(String msg) {
                super(msg);
        }

}

public class student {

        String itnumber ;
        String name ;

        student( String itnumber , String name){
                this.itnumber = itnumber;
                this.name = name ;
        }

        void display() throws invalidITNumberException{

                try
                {
                        if(itnumber.length() != 10 || (itnumber.substring(0,2).equals("IT") == false &&
itnumber.substring(0,2).equals("it")== false))
                        {
                                throw new invalidITNumberException("invalid IT number");
```

```java
                }
                try
                {
                        long num = Integer.parseInt(itnumber.substring(2,10));
                }
                catch(NumberFormatException e)
                {
                        throw new invalidITNumberException("invalid IT number");
                }
                System.out.println("student Id : " + this.itnumber);
                System.out.println("student Name : " + this.name);
        }
        catch(invalidITNumberException e) {
                System.out.println(e.getMessage());
        }
    }
}

public class excep_demo_MAin {

    public static void main(String[] args) throws invalidITNumberException {

        student s = new student("it34542333","klapa");
        s.display();

    }

}
```

Version F

```java
package quz2;

public class timeException extends Exception{

    public timeException(String msg){
        super(msg);
    }

}


package quz2;

import java.util.Scanner;

public class alarmclock {

    int Hour ;
    int minutes ;
    int seconds ;
```

```java
    public alarmclock() {
            this.Hour = 12 ;
            this.minutes = 0 ;
            this.seconds = 0 ;
    }


    public void inputAlarm() throws timeException{

            Scanner ss = new Scanner(System.in);
            System.out.println("Enter  time : ");

            this.Hour = ss.nextInt();
            this.minutes = ss.nextInt();
            this.seconds = ss.nextInt();

            try
            {
                    if((Hour < 0 || Hour > 12) || (minutes <= 0 || minutes > 60) || (seconds <= 0 || seconds >
60))

                    {
                            throw new timeException("Time is wrong");

                    }
            }
            catch(NumberFormatException e)
            {
                            throw new timeException("Time is wrong");
            }
            catch(timeException e)
            {
                    System.out.println(e.getMessage());
                    System.out.println(e);
            }

    }


    public void showAlarm() {
            System.out.println("Hour :" + Hour);
            System.out.println("Minutes :" + minutes);
            System.out.println("Seconds :" + seconds);
    }

    public void SetAlarm() {

    }

}

//main class
```

```java
package quz2;

import java.util.ArrayList;

public class mainclock {

        public static void main(String[] args) throws timeException {

                alarmclock ac1 = new alarmclock();
                alarmclock ac2 = new alarmclock();

                ArrayList<alarmclock> al = new ArrayList();

                al.add(ac1);
                al.add(ac2);

                for( alarmclock a : al) {
                        System.out.println(a);
                }

                ac1.inputAlarm();
                ac1.showAlarm();
                ac2.SetAlarm();
        }

}
```

Version G

```java
package quz2;

import java.util.InputMismatchException;
import java.util.Scanner;

public class Employee {
        protected String empID ;
        protected String Name ;
        protected String Address ;

        public Employee(String eMPID, String name, String address) {
                super();
                this.empID = eMPID;
                this.Name = name;
                this.Address = address;
        }

        void Read() {
                Scanner sc = new Scanner(System.in);

                this.empID = sc.next();
                this.Name = sc.next();
                this.Address = sc.next();
```

```java
	}

	void print() {

		System.out.println("Empi ID : " + this.empID);
		System.out.println("Name : " + this.Name);
		System.out.println("Address : " + this.Address);
	}

}

class manager extends Employee{

	private String Department ;
	private int productNo1 ;
	private int productNo2 ;
	private int productNo3 ;

	public manager(String eMPID, String name, String address , String Department , int productNo1 ,int
productNo2, int productNo3 ) {
		super(eMPID, name, address);

		this.Department = Department ;
		this.productNo1 = productNo1 ;
		this.productNo2 = productNo2 ;
		this.productNo3 = productNo3 ;
	}

	public void read() {
		Read();

		Scanner ss = new Scanner(System.in);

		this.Department = ss.next();
		/**/

		try {
			this.productNo1 = ss.nextInt();
			this.productNo2 = ss.nextInt();
			this.productNo3 = ss.nextInt();
		}catch(InputMismatchException e) {
			System.out.println(e);
			System.out.println("You entered a wrong number");
		}
	}

}

package quz2;
```

```java
public class emp_mng_main {

    public static void main(String[] args) {

        Employee e = new Employee(null, null, null);
        manager e2 = new manager(null, null, null, null, 0, 0, 0);

        //e.Read();
        //e.print();

        e2.read();
    }
}
```

Points

Creating random numbers
```java
import java.util.Random;
import java.util.Random.*;
Random ran = new Random();
ran.nextInt(10);
```

passing arrays to methods
```java
void method_name (int [] array);
method_name (myarray);
```

declaring array in java
```java
int [][] LotteryNumber = new int[5][5] ;
```

Custom exception handling

```java
package Ex1;
public class Account {
    private double balance;
    private int accNo;

    public Account(int accNo) {
        this.accNo = accNo;
    }

    //deposit
    public void deposit(double amount) {
```

```java
package Ex1;

public class BankDemo {

    public static void main(String[] args) {

        Account account = new Account(123);

        System.out.println("Depositing Rs.10,000");
        account.deposit(10000.00);

        try {
            System.out.println("\nWithdrawing Rs.6,000/=");
            account.withdraw(6000.00);

            System.out.println("\nWithdrawing Rs.8,000/=");
            account.withdraw(8000.00);

        } catch (InsufficientBalanceException e) {
            System.out.println("Sorry, your account remains only Rs." + e.getAmount());
            e.printStackTrace();
        }
    }
}
```

```java
1  package Ex1;
2
3  public class InsufficientBalanceException extends Exception {
4
5      private double amount;
6
7      public InsufficientBalanceException(double amount) {
8          this.amount = amount;
9      }
10
11     public double getAmount() {
12         return amount;
13     }
14 }
15
```

character array to string
toString(s)


```java
if(itnumber.length() != 10 || (itnumber.substring(0,2).equals("IT") == false && itnumber.substring(0,2).equals("it")== false))
```