



Assignment: 1
Programming Fundamentals

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Question1: Business ISBN

```
1 package russi;
2 import java.util.Scanner;
3 public class Business_IsbnCheck {
4     public static void main(String[] args) {
5         //Question: Bussiness: Check ISBN-10
6         Scanner input = new Scanner(System.in);
7         System.out.print("Enter the first 9 digits of an ISBN as
            Integer: ");
8         int userIsbInput = input.nextInt();
9         int isbnNumber = userIsbInput;
10        //Number partitions
11        int d9 = isbnNumber % 10;
12        isbnNumber /= 10;
13        int d8 = isbnNumber % 10;
14        isbnNumber /= 10;
15        int d7 = isbnNumber % 10;
16        isbnNumber /= 10;
17        int d6 = isbnNumber % 10;
18        isbnNumber /= 10;
19        int d5 = isbnNumber % 10;
20        isbnNumber /= 10;
21        int d4 = isbnNumber % 10;
22        isbnNumber /= 10;
23        int d3 = isbnNumber % 10;
24        isbnNumber /= 10;
25        int d2 = isbnNumber % 10;
26        isbnNumber /= 10;
27        int d1 = isbnNumber ;
28        //Check Sum formulae
29        int checkSum = (d1 * 1 + d2 * 2 + d3 * 3 + d4 * 4 + d5 * 5 +
            d6 * 6 + d7 * 7 + d8 * 8 + d9 * 9 )% 11;
30        //If sequence
31        if (checkSum == 10)
32            System.out.println("The ISB-10 number is "+userIsbInput
                +"X");
33        else
34            System.out.printf("The ISB-10 number is %d%d",
                userIsbInput,checkSum);
35    }
36 }
37
38
39
```

Question2: Game Lottery

```
1 package russi;
2 import java.util.Scanner;
3 public class GameLottery {
4     public static void main(String[] args) {
5         //(Game: lottery)
6         Scanner input = new Scanner(System.in);
7         System.out.print("Enter Lottery Guess: ");
8         int userGuess = input.nextInt();
9         int randomLotteryNumber = 100 + (int)(Math.random()*900);
10        System.out.println("Lottery number is: "+randomLotteryNumber);
11
12        if (userGuess == randomLotteryNumber)
13            System.out.println("Correct Guess: You win $10,000.");
14
15        //-----> Numbers separation-----
16        int lottery3 = randomLotteryNumber % 10;
17        randomLotteryNumber /= 10;
18        int lottery2 = randomLotteryNumber % 10;
19        randomLotteryNumber /= 10;
20        int lottery1 = randomLotteryNumber % 10;
21        //-----> Numbers separation-----
22        int user3 = userGuess % 10;
23        userGuess /= 10;
24        int user2 = userGuess % 10;
25        userGuess /= 10;
26        int user1 = userGuess % 10;
27        //----->Selections-----
28        // if all numbers matched-----
29        if ( ( lottery1 == user1 || lottery1 == user2 || lottery1 == user3)
30            && (lottery2 == user2 || lottery2 == user1 || lottery2 == user3)
31            && (lottery3 == user3 || lottery3 == user1 || lottery3 == user2 )){
32            System.out.println("All Digits match. You win $3,000");
33        }// if one digit match found-----
34        else if ((lottery1 == user1) || (lottery1 == user2) || (lottery1 == user3)
35            || (lottery2 == user1) || (lottery2 == user2) || (lottery2 == user3)
36            || (lottery3 == user1) || (lottery3 == user2) || (lottery3 == user3)){
37            System.out.println("Match found: $1,000");
38        }//-----If nothing matches-----
39        else
40            System.out.println("try next time");
41    }
42 }
43
44
```

Question3: Zeller's Congruence

```
1 package russi;
2 import java.util.*;
3 public class ZellersCongruence{
4     public static void main(String[] args) {
5         Scanner input = new Scanner(System.in);
6         //Input Year-----
7         System.out.print("Enter year: (e.g., 2021): ");
8         int year = input.nextInt();
9         //Input Month-----
10        System.out.print("Enter month: 1-12: ");
11        int m = input.nextInt();
12        //Special Case for January and February
13        if (m == 1 || m == 2) {
14            m = m + 12;
15            year = year - 1;
16        }
17        //Input Month-----
18        System.out.print("Enter the day of the month: 1-31: ");
19        int q = input.nextInt();
20        //Year of Century-----
21        int k = year % 100;
22        //Century-----
23        int j = year / 100;
24        //Formulae for Day of month Calculations
25        int h = (q + ( ( 26 * (m + 1) ) / 10) + k + (k / 4) + (j / 4) + (5 * j)) % 7;
26        String day = "";
27        switch (h) {
28            case 2: day = "Monday";break;
29            case 3: day = "Tuesday";break;
30            case 4: day = "Wednesday";break;
31            case 5: day = "Thursday";break;
32            case 6: day = "Friday";break;
33            case 0: day = "Saturday";break;
34            case 1: day = "Sunday";break;
35        }
36        //Day displayed-----
37        System.out.println("Day of the week is " + day);
38    }
39 }
```

Question1: *Business ISBN*

OUTPUT

```
↑ "C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:
Enter the first 9 digits of an ISBN as Integer: 013031997
↓ The ISB-10 number is 13031997X

↑ "C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:
Enter the first 9 digits of an ISBN as Integer: 013601267
↓ The ISB-10 number is 0136012671
```

Question2: *Game Lottery*

OUTPUT

```
↑ "C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagei
Enter Lottery Guess: 546
↓ Lottery number is: 546
↻ Correct Guess: You win $10,000.
All Digits match. You win $3,000

↑ "C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:\l
Enter Lottery Guess: 312
↓ Lottery number is: 915
↻ Match found: $1,000
```

Question3: *Zeller's Congruence*

OUTPUT

```
↑ "C:\Program Files\Java\jdk-15.0.2\bin\java.exe"
Enter year: (e.g., 2021): 2015
↓ Enter month: 1-12: 1
↻ Enter the day of the month: 1-31: 25
Day of the week is Sunday
↻
```