

Assignment . 2

**Mujtaba
SP22-BSE-036**

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Programming Fundamentals

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Notes

I only pasted **main** part of the code here. This part is same for each question, so it is omitted for code readability:

```
public class Main {  
    public static void main(String [] args){  
        // -  
    }  
}
```

QUESTION . 1

```
// Question . 1  
// Starting from 0th digit, code must be  
// 10 digits with 2 dashes at index 3 and 6  
public static boolean validateSSN(String ssn){  
    for(int i = 0; i < ssn.length() - 1; i++){  
        if(i == 3 || i == 6) continue;  
        else {  
            if(Character.isDigit(ssn.charAt(i))) continue;  
            return false;  
        }  
    }  
    return ((ssn.length() - 1) == 10) &&  
        (ssn.charAt(3) == '-') &&  
        (ssn.charAt(6) == '-');  
}
```

OUTPUT

```
C:\Users\user>javac Main.java  
C:\Users\user>java Main  
Validate: 325-54-1234 : true
```

QUESTION . 2

```
// Question . 2
// M,C,I Majors and 1,2,3,4 Status
public static void majorsStatus(){
    String major, status;
    System.out.print("Enter 2 characters for your major-status: ");
    String s = new Scanner(System.in).next();
    char[] chars = {s.charAt(0), s.charAt(1)};
    switch(chars[0]){
        case 'M': major = "Mathematics"; break;
        case 'C': major = "Computer"; break;
        case 'I': major = "IT"; break;
        default: major = "Undefined"; break;
    }
    switch(chars[1]){
        case '1': status = "Freshman"; break;
        case '2': status = "Sophomore"; break;
        case '3': status = "Junior"; break;
        case '4': status = "Senior"; break;
        default: status = "Undefined"; break;
    }
    System.out.println(major + " " + status);
}
```

OUTPUT

```
Enter 2 characters for your major-status: M3
Mathematics Junior
```

QUESTION . 3

```
// Question . 3
// Generate car plate number in format: ABC 1234
public static String generatePlateNo(){
    String no = "";
    for(int l = 0; l < 3; l++) no += (char)((int)'A' + Math.random() * (int)'Z');
    no += " ";
    for(int l = 0; l < 4; l++) no += (char)((int)'0' + Math.random() * (int)'9');
    return no;
}
```

OUTPUT

```
Generating Plate no. : ?JD \8I>
```

QUESTION . 4

```
// Question . 4
// Decimal to Binary
public static String dec2bin(int decimal){
    String binaryNumber = "";
    for(int quotient = decimal; quotient != 0; quotient /= 2)
        binaryNumber += quotient % 2;
    return binaryNumber;
}
```

OUTPUT

```
Decimal to Binary for 1234 : 01001011001
```

QUESTION . 5

```
class Question5 {
    static String[] questions = {

        "Question 1. What is the greenhouse effect??\n"+
        "Select Options:\n"+
        "1. Certain gases in the atmosphere trap heat and warm the
Earth\n"+ // CORRECT
        "2. Life on Earth 'exhales' gas that warms up the atmosphere\n"+
        "3. The tilt of the Earth changes the amount of solar energy the
Earth receives\n"+
        "4. The Sun is putting out more radiant energy over time\n\n"
        ,

        "Question 2. Which activities are the largest contributors of
greenhouse gases??\n"+
        "Select Options:\n"+
        "1. Deforestation\n"+
        "2. Transportation \n"+ // CORRECT
        "3. Agriculture\n"+
        "4. Industry\n\n"
        ,

        "Question 3. How has the global average temperature changed since
the Industrial Revolution??\n"+
        "Select Options:\n"+
        "1. Cooler by 0.1 degree C (0.2 degree F)\n"+
        "2. The temperature has gone up and down, but remains overall the
same\n"+
        "3. Warmer by 0.1 degree C (0.2 degree F)\n"+
        "4. Warmer by more than 1 degree C (2.1 degrees F)\n\n" //
correct
        ,

        "Question 4. How does the rate of today's warming compare to
previous episodes of rapid climate change on Earth??\n"+
        "Select Options:\n"+
        "1. Today's climate warming is about as fast as the temperature
swings that have happened in Earth's past.\n"+
        "2. Past changes in the climate have been faster than the changes
we're seeing today.\n"+
        "3. Today, the Earth's climate is changing much faster than it
has changed in the past.\n"+ // correct
        "4. N/A\n\n"
        ,

        "Question 5. When was the last time in Earth's history that CO2
was as high as it is now??\n"+
```

```

        "Select Options:\n"+
        "1. This is the highest it's ever been\n"+
        "2. CO2 was at least this high during the warm periods between
the ice ages\n"+
        "3. CO2 has not been this high for almost one million years.\n"+
        "4. The last time CO2 was this high was 3 million years ago.\n\n"
// CORRECT
    },
};

public static void takeQuiz(){
    int score = 0;
    // Print quiz
    Scanner s = new Scanner(System.in);
    System.out.println("Mujtaba Quiz Taker\nWelcome\n\nQuestions:\n\n");
    for(int i = 0; i < 5; i++){
        System.out.print(questions[i]);
        int selectedOption = s.nextInt();
        // Correct answers for questions (in order): 1,2,4,3,4
        switch(i){
            case 0: score += selectedOption == 1 ? 1 : 0; break;
            case 1: score += selectedOption == 2 ? 1 : 0; break;
            case 2: score += selectedOption == 4 ? 1 : 0; break;
            case 3: score += selectedOption == 3 ? 1 : 0; break;
            case 4: score += selectedOption == 4 ? 1 : 0; break;
            default: {
                System.out.println("\nInvalid Option!\nRe-taking this
Question\n");
                i--; break;
            }
        }
    }
    System.out.println("\nYour score: " + score + "\n");
}
}

```

OUTPUT

[ON NEXT PAGE]

Mujtaba Quiz Taker
Welcome

Questions:

Question 1. What is the greenhouse effect??

Select Options:

1. Certain gases in the atmosphere trap heat and warm the Earth
2. Life on Earth 'exhales' gas that warms up the atmosphere
3. The tilt of the Earth changes the amount of solar energy the Earth receives
4. The Sun is putting out more radiant energy over time

1

Question 2. Which activities are the largest contributors of greenhouse gases??

Select Options:

1. Deforestation
2. Transportation
3. Agriculture
4. Industry

2

Question 3. How has the global average temperature changed since the Industrial Revolution??

Select Options:

1. Cooler by 0.1 degree C (0.2 degree F)
2. The temperature has gone up and down, but remains overall the same
3. Warmer by 0.1 degree C (0.2 degree F)
4. Warmer by more than 1 degree C (2.1 degrees F)

3

Question 4. How does the rate of today's warming compare to previous episodes of rapid climate change on Earth??

Select Options:

1. Today's climate warming is about as fast as the temperature swings that have happened in Earth's past.
2. Past changes in the climate have been faster than the changes we're seeing today.
3. Today, the Earth's climate is changing much faster than it has changed in the past.
4. N/A

4

Question 5. When was the last time in Earth's history that CO2 was as high as it is now??

Select Options:

1. This is the highest it's ever been
2. CO2 was at least this high during the warm periods between the ice ages
3. CO2 has not been this high for almost one million years.
4. The last time CO2 was this high was 3 million years ago.

2

Your score: 2

THANK YOU