

# AP Tutorials

*Java Programming classes under Aryan Singh*

## Week 5 Assignment

1. Create a program that prompts the user for their age and prints whether they are eligible to vote (18 years or older) or not. Use an if-else statement for this decision.
2. Write a Java program that takes a score from the user and prints the corresponding grade based on the following criteria: A: 90-100 B: 80-89 C: 70-79 D: 60-69 F: Below 60 Use an if, else if, and else structure.
3. Implement a program that takes a day number (1 to 7) as input and prints the corresponding day of the week (e.g., 1 for Monday, 2 for Tuesday, etc.) using a switch statement.
4. Create a program that converts temperatures between Celsius and Fahrenheit based on user input. Use conditional statements to determine which conversion to perform based on the user's choice (Celsius to Fahrenheit or vice versa).

Here are the solutions to all four questions:

### 1. Voting Eligibility Program

```
import java.util.Scanner;

public class VotingEligibility {
    public static void main(String[] args) {
        // Create a Scanner object to read user input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter their age
        System.out.print("Enter your age: ");
        int age = scanner.nextInt();

        // Use an if-else statement to check the eligibility for voting
        if (age >= 18) {
            System.out.println("You are eligible to vote.");
        } else {
            System.out.println("You are not eligible to vote.");
        }

        // Close the Scanner to prevent resource leaks
        scanner.close();
    }
}
```

```
    }
}
```

## 2. Grade Based on Score Program

```
import java.util.Scanner;

public class GradeBasedOnScore {
    public static void main(String[] args) {
        // Create a Scanner object to read user input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter their score
        System.out.print("Enter your score (0-100): ");
        int score = scanner.nextInt();

        // Use if, else if, and else statements to determine the grade
        if (score >= 90 && score <= 100) {
            System.out.println("Grade: A");
        } else if (score >= 80 && score < 90) {
            System.out.println("Grade: B");
        } else if (score >= 70 && score < 80) {
            System.out.println("Grade: C");
        } else if (score >= 60 && score < 70) {
            System.out.println("Grade: D");
        } else if (score < 60 && score >= 0) {
            System.out.println("Grade: F");
        } else {
            System.out.println("Invalid score. Please enter a score between 0 and 100.");
        }

        // Close the Scanner to prevent resource leaks
        scanner.close();
    }
}
```

## 3. Day of the Week Based on Day Number Program

```
import java.util.Scanner;

public class DayOfWeek {
    public static void main(String[] args) {
        // Create a Scanner object to read user input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter the day number

```

```

System.out.print("Enter the day number (1-7): ");
int dayNumber = scanner.nextInt();

// Use a switch statement to determine the day of the week
switch (dayNumber) {
    case 1:
        System.out.println("Monday");
        break;
    case 2:
        System.out.println("Tuesday");
        break;
    case 3:
        System.out.println("Wednesday");
        break;
    case 4:
        System.out.println("Thursday");
        break;
    case 5:
        System.out.println("Friday");
        break;
    case 6:
        System.out.println("Saturday");
        break;
    case 7:
        System.out.println("Sunday");
        break;
    default:
        System.out.println("Invalid day number. Please enter a number between 1 and 7");
        break;
}

// Close the Scanner to prevent resource leaks
scanner.close();
}
}

```

#### 4. Temperature Conversion Program

```

import java.util.Scanner;

public class TemperatureConversion {
    public static void main(String[] args) {
        // Create a Scanner object to read user input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to choose the conversion type
    }
}

```

```

System.out.println("Choose the conversion type:");
System.out.println("1. Celsius to Fahrenheit");
System.out.println("2. Fahrenheit to Celsius");
int choice = scanner.nextInt();

// Prompt the user to enter the temperature
System.out.print("Enter the temperature: ");
double temperature = scanner.nextDouble();

// Use conditional statements to perform the conversion
if (choice == 1) {
    double fahrenheit = (temperature * 9 / 5) + 32;
    System.out.printf("%.2f°C is equal to %.2f°F%n", temperature, fahrenheit);
} else if (choice == 2) {
    double celsius = (temperature - 32) * 5 / 9;
    System.out.printf("%.2f°F is equal to %.2f°C%n", temperature, celsius);
} else {
    System.out.println("Invalid choice. Please choose 1 or 2.");
}

// Close the Scanner to prevent resource leaks
scanner.close();
}
}

```

### How Each Program Works:

- **Voting Eligibility:**
  - Prompts the user for their age.
  - Uses an **if-else** statement to check if the age is 18 or older.
- **Grade Based on Score:**
  - Prompts the user for their score.
  - Uses **if**, **else if**, and **else** statements to determine the grade based on the score.
- **Day of the Week:**
  - Prompts the user for a day number.
  - Uses a **switch** statement to determine the corresponding day of the week.
- **Temperature Conversion:**
  - Prompts the user to choose the conversion type and enter the temperature.
  - Uses conditional statements to perform the temperature conversion based on the user's choice.