

Day 26

Assignment 7: Timezone Create a timezone converter that takes a time in one timezone and converts it to another timezone in java code and explanation.

A)

Sure, here's a Java program that converts a time from one timezone to another timezone:

Java code:

```
import java.text.ParseException;
```

```
import java.text.SimpleDateFormat;
```

```
import java.util.Date;
```

```
import java.util.Scanner;
```

```
import java.util.TimeZone;
```

```
public class TimezoneConverter {
```

```
    public static void main(String[] args) {
```

```
        Scanner scanner = new Scanner(System.in);
```

```
        // Prompt the user to input the time and timezone
```

```
        System.out.print("Enter the time (HH:mm:ss): ");
```

```
        String inputTime = scanner.nextLine();
```

```
        System.out.print("Enter the timezone of the input time: ");
```

```
        String inputTimezone = scanner.nextLine();
```

```
        System.out.print("Enter the target timezone: ");
```

```
        String targetTimezone = scanner.nextLine();
```

```

// Parse the input time string into a Date object
Date date = parseDate(inputTime);

if (date != null) {

    // Set the input timezone
    TimeZone inputTimeZone = TimeZone.getTimeZone(inputTimezone);

    // Set the target timezone
    TimeZone targetTimeZone = TimeZone.getTimeZone(targetTimezone);

    // Convert time from input timezone to target timezone
    long inputTimeMillis = date.getTime();

    long targetTimeMillis = inputTimeMillis + targetTimeZone.getRawOffset() -
inputTimeZone.getRawOffset();

    // Create a new Date object with the target time
    Date targetDate = new Date(targetTimeMillis);

    // Format the result time
    String resultTime = formatDate(targetDate);

    // Display the converted time
    System.out.println("Time in " + targetTimezone + ": " + resultTime);

} else {

    System.out.println("Invalid time format. Please enter time in the format HH:mm:ss.");

}

scanner.close();

}

// Helper method to parse string time into Date object
private static Date parseDate(String inputTime) {

    SimpleDateFormat dateFormat = new SimpleDateFormat("HH:mm:ss");

```

```

    try {

        return dateFormat.parse(inputTime);

    } catch (ParseException e) {

        return null;

    }

}

// Helper method to format Date object into string time

private static String formatDate(Date date) {

    SimpleDateFormat dateFormat = new SimpleDateFormat("HH:mm:ss");

    return dateFormat.format(date);

}

}

```

Explanation:

We import necessary classes from java.util package for working with dates, times, and timezones, and java.util.Scanner for user input.

The user is prompted to input the time in the format "HH:mm

", the timezone of the input time, and the target timezone.

We parse the input time string into a Date object using SimpleDateFormat.

We set the input timezone and target timezone using TimeZone.getTimeZone() method.

We calculate the time difference between the input and target timezones, and adjust the time accordingly.

Finally, we format the result and display the converted time in the target timezone.