

Assignment 1

Course Name: CS6308 Java Programming

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Instructions: Follow the naming conventions (class, method, variables etc) as per the Java standard

<https://www.oracle.com/java/technologies/javase/codeconventions-namingconventions.html>

Exercise 1: Hello friends:

Write the program and compile the code @command line to execute to greet your friends.

Output: Hello, Alice, Bob, Charlie! Good Morning!

Exercise 2: Error message

Find the maximum Compile time and Run time error messages of simple one line output message.

Example

- Delete any of the semicolons.
- Swap the word public, static, void, main
- Omit the word public, static, void, main
- Remove the array Subscript around string
- Replace String with int or float
- Replace String[] as String...

Exercise 3: Conversation

Write a Java program to create a Conversation between Java and Python

Java: Hi, I'm Java. What's your name?

Python: I'm Python. Nice to meet you!

Java: Programmers use me for large-scale systems and performance-critical applications.

Python: I'm best for rapid development and scripting tasks.

Java: I use static typing for early error detection.

Python: I use dynamic typing for more flexibility.

Java: I run on the JVM, making me portable across many platforms.

Python: I'm portable with the Python interpreter on any system.

Java: Ideal for enterprise applications and Android apps.

Python: Perfect for web development and data analysis.

Java: My performance is strong with JVM optimizations.

Python: I excel in ease of use and quick development cycles.

Java: Use me for performance and large projects.

Python: Use me for ease and speed in development.

Java: This was great!. Bye for now!

Python: Bye!

Exercise4: Leap year

Write a program to check if the given year is a leap year or not.

Your input is an integer(**year**).The program should print a Boolean value: **True** if the year is a leap year, **False** if not.

Constraint

year \geq 1000

Input: 2024

Output: True

Input: 2025

Output:

False

Also find the next leap year

Exercise 5:Day of the Week

Write a program that takes a date as input and prints the day of the week that date falls on. Read the three int input as m(month), d(day) and y(year). Use 1 of m for January, 2 for February, and so forth. For output print 0 for Sunday, 1 for Monday and so forth. Use the following formula for the Gregorian calendar.

$$y_0 = y - (14 - m) / 12$$

$$x = y_0 + y_0 / 4 - y_0 / 100 + y_0 / 400$$

$$m_0 = m + 12 \times ((14 - m) / 12) - 2$$

$$d_0 = (d + x + (31 \times m_0) / 12) \% 7$$

Example: On which day of the week did February 14, 2000 fall?

$$y_0 = 2000 - 1 = 1999$$

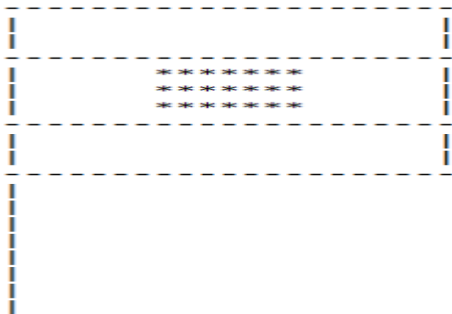
$$x = 1999 + 1999 / 4 - 1999 / 100 + 1999 / 400 = 2483$$

$$m_0 = 2 + 12 \times 1 - 2 = 12$$

$$d_0 = (14 + 2483 + (31 \times 12) / 12) \% 7 = 2500 \% 7 = 1$$

Answer: Monday.

Exercise 6: Write a Java program to create a Indian Flag



Exercise 7: Model OR gate

Write a program to model the AND gate using the linear combination of inputs formula

$$Y = \text{Bias} + W_0 \cdot X_1 + W_1 \cdot X_2$$

where X_1 and X_2 are the input values, and y is the output, determine the values for the weights W_0 and W_1 , and the bias term that will correctly model the behavior of a logical AND gate. Use the condition that $Y > 0.5$ results in output 1 and $Y \leq 0.5$ results in output 0.

Exercise 8: Write a program that converts a given integer into its equivalent words representation. The program should handle negative numbers and checks if the input is within the specified range of 0 to 999.

Input

123

Output

One Hundred and Twenty Three

Exercise 9: Casino Game

Write a Java program to simulate a simple Casino game where the player starts with 1000 credit points. Each roll costs 100 credits (the bet amount). For each roll, If the sum of the two dice is 7 or 11, the player wins and gains 100 credits or If the sum of the dice is 2, 3, or 12, the player loses 100 credits or For any other sum (4, 5, 6, 8, 9, or 10) there is no change in credits. The game continues until the player either goes bankrupt (reaches 0 credits) or reaches the target win amount of 2000 credits.

Output:

Current Credits: 1000

Rolling the dice...

Dice sum: 7

You win 100 credits! New Credits: 1100

Current Credits: 1100

Rolling the dice...

Dice sum: 4

Oops! No change in credits. New Credits: 1100

...

Game Over! Final Credit:----[0 or 2000]