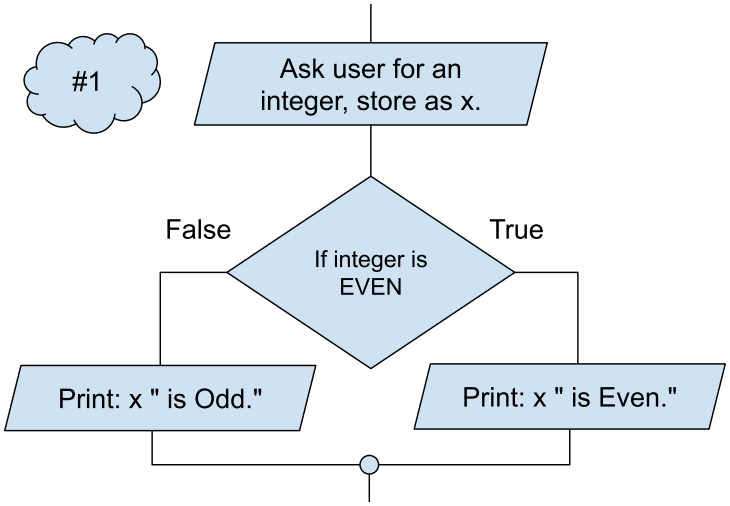
Homework 5

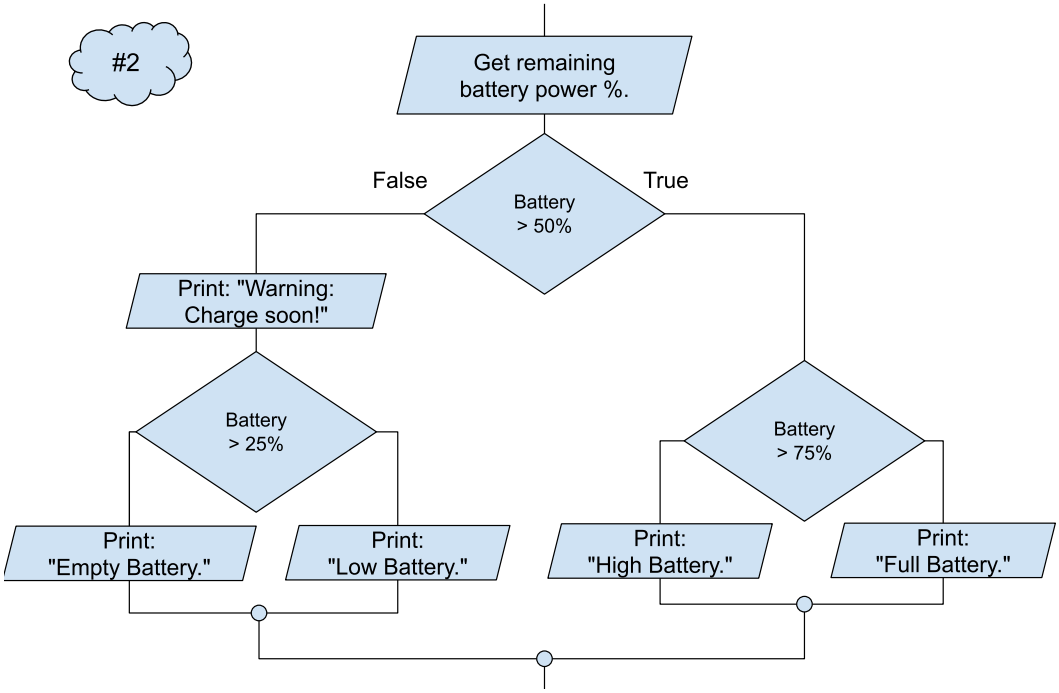
CSC-121, Fall 2025

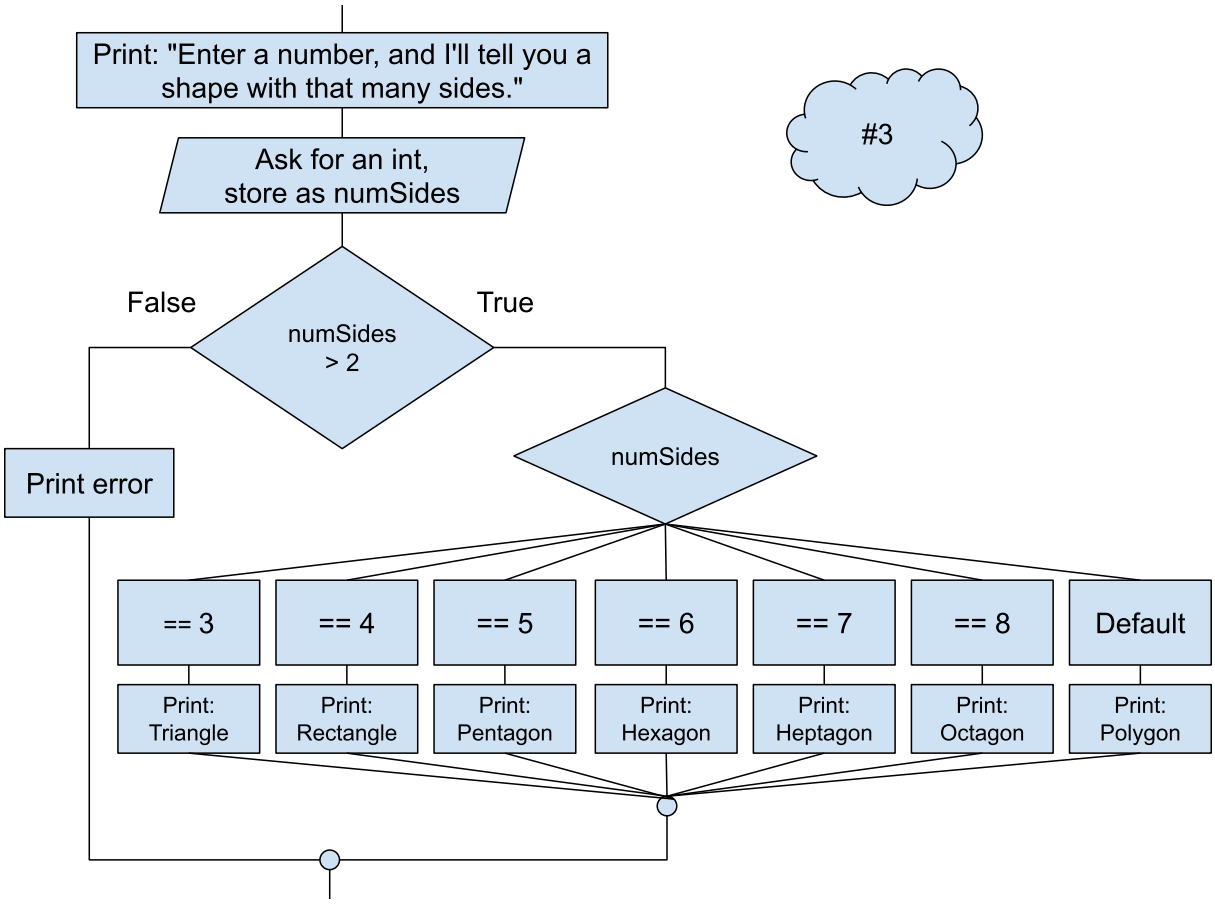
Submission Instructions: Create a single text file for your answers (Use .txt or .pdf) with your name and ID number at the top. Include code written for any programs, and type-written answers to non-coding questions. Submit the file on Canvas to complete the assignment. You may work in groups or use genAI help, but written answers must be in your own words.

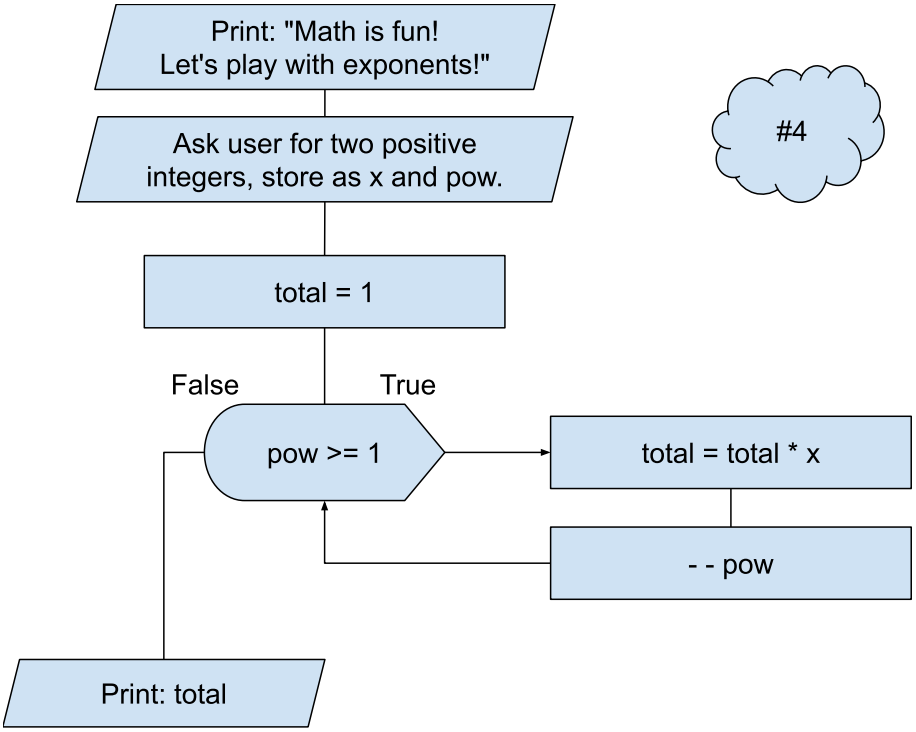
Q1. Plans to Logic

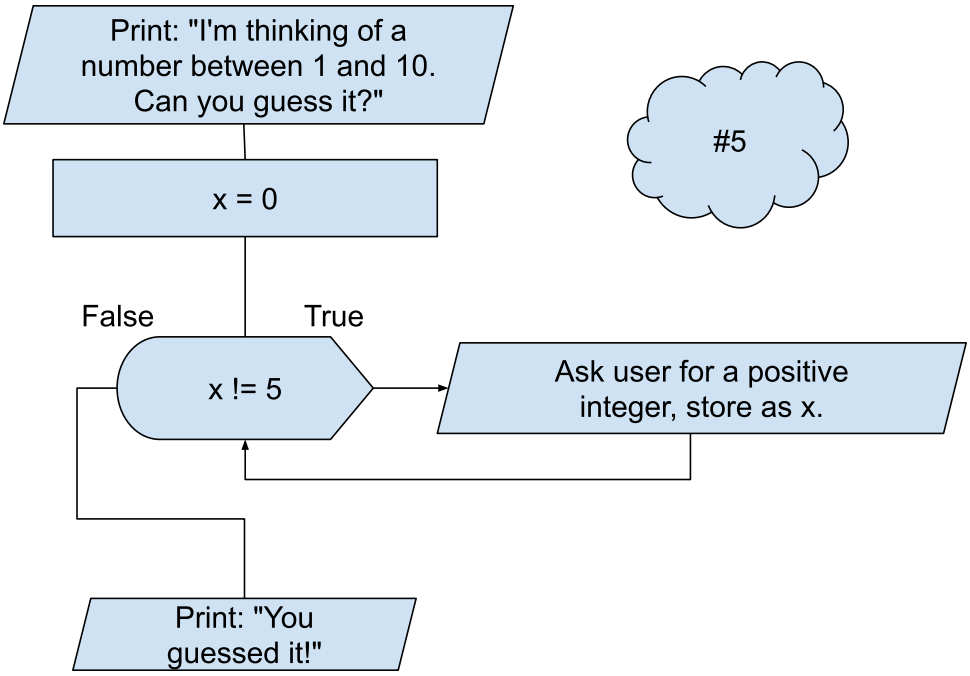
Convert the following flowcharts and pseudocode into Java programs.

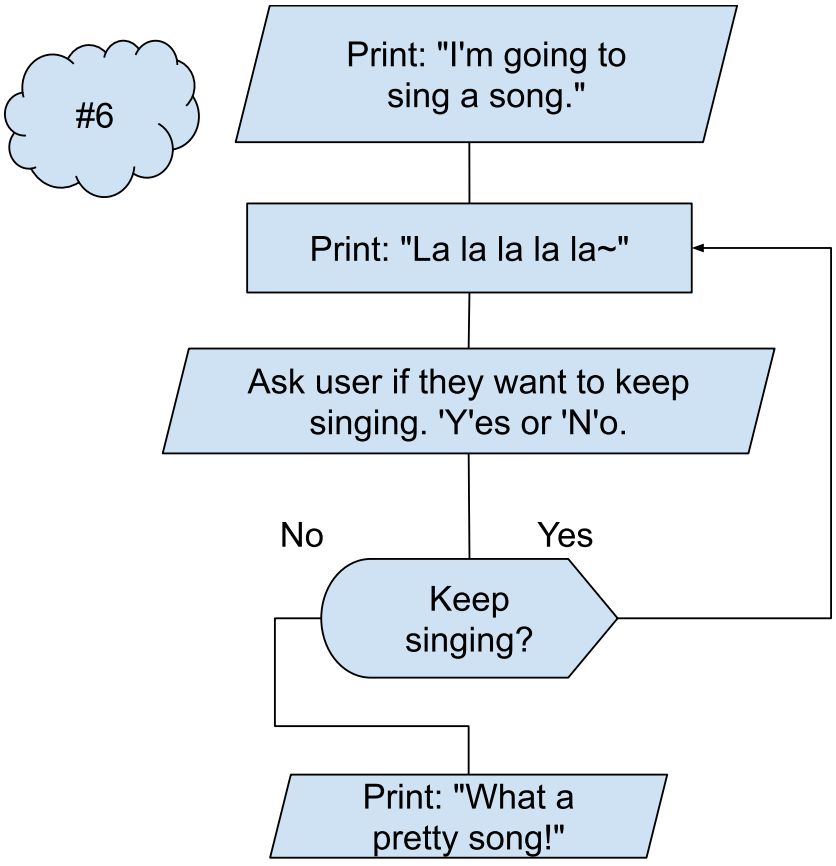





Print: "Enter a number, and I'll tell you a shape with that many sides."
Ask for an int, store as numSides
#3
False
numSides > 2
True
Print error
numSides
== 3
== 4
== 5
== 6
== 7
== 8
Default
Print: Triangle
Print: Rectangle
Print: Pentagon
Print: Hexagon
Print: Heptagon
Print: Octagon
Print: Polygon


Print: "Math is fun! Let's play with exponents!"
Ask user for two positive integers, store as x and pow.
#4
total = 1
False
True
pow >= 1
total = total * x
- - pow
Print: total


Print: "I'm thinking of a number between 1 and 10. Can you guess it?"
x = 0
False
True
x != 5
Ask user for a positive integer, store as x.
Print: "You guessed it!"
#5


#6
Print: "I'm going to sing a song."
Print: "La la la la la~"
Ask user if they want to keep singing. 'Y'es or 'N'o.
No
Yes
Keep singing?
Print: "What a pretty song!"

Q2. Shipping Charges

The *Fast Freight Shipping Company* charges the following rates:

Weight of Package	**Rate per 500 Miles Shipped**
2 pounds or less	$1.10
Over 2 pounds but not more than 6 pounds	$2.50
Over 6 pounds but not more than 10 pounds	$3.50
Over 10 pounds	$4.00

The shipping charges per 500 miles are not prorated. For example, if a 2-pound package is shipped 550 miles, the charges would be $2.20. Write a program that asks the user to enter the weight of a package and the distance in miles the package will travel, then displays the shipping charges.

Q3. Loops, and loops, and loops…

The following questions involve writing loops.

Loops-1. Sum of Numbers

Write a program that asks the user for a positive nonzero integer value. The program should use a loop to get the sum of all the integers from 1 up to the number entered. For example, if the user enters 50, the loop will find the sum of 1, 2, 3, 4, . . . 50.

Loops-2. Working for Pennies

Write a program that calculates the amount a person would earn over a period of time if his or her salary is one penny the first day, two pennies the second day, and continues to double each day. The program should display a table showing the salary for each day, and then show the total pay at the end of the period. The output should be displayed in a dollar amount, not the number of pennies.

Input Validation: Do not accept a number less than 1 for the number of days worked! If an invalid number is entered, print an error message and ask again until the user enters a valid choice.

Loops-3. Largest and Smallest

Write a program with a loop that lets the user enter a series of integers. The user should enter −99 to signal the end of the series. After all the numbers have been entered, the program should display the largest and smallest numbers entered.

Loops-4. Square Display

Write a program that asks the user for a positive integer no greater than 15. The program should then display a square on the screen using the character ‘X’. The number entered by the user will be the length of each side of the square.

For example, if the user enters 5, the program should display the following:

```
XXXXX
XXXXX
XXXXX
XXXXX
XXXXX
```

If the user enters 8, the program should display the following:

```
XXXXXXXX
XXXXXXXX
XXXXXXXX
XXXXXXXX
XXXXXXXX
XXXXXXXX
XXXXXXXX
XXXXXXXX
```

HINT: Try using nested loops to pull this one off.