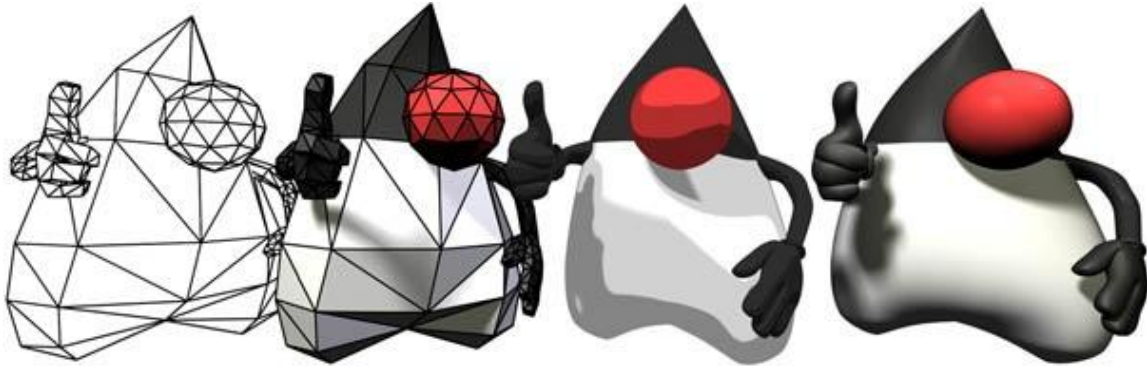


JAVA Assignment



Java Assignment 6: Final Project

You are to create a final java project.

You must submit your project on a shared folder on the S Drive.

You may;

1. Create a Swing Based Two player Tic Tac Toe
2. Create a robocode tank logic program using the robocode site on the internet
 - a. Grading: You must beat Big Papa 4/10 times for an A, 3 for a B, 2 for a C
3. Create a program that teaches someone the concepts from a course learned at Shen

Your program should be fully documented for an "A"

You need to have a comment at the top of your program indicating what the purpose of the program is

Tic Tac Toe Thoughts

- You are to create the classic game Tic Tac Toe (2 player)
- You will design a Swing Application that utilizes some sort of input to allow the user to select one of 9 squares to place an X or O in

- The player's turns will alternate
- Anyone who gets three in a row will win
- If no one achieves 3 in a row, a tie is ruled
- The game must count the number of times X wins, O wins and ties and needs to be able to restart (Use a restart button)
- You need to toggle who goes first each game X then O then X etc
- **Bonus: Devise an AI for the player to play against**

Issues

1. Data representation of the State of the Board
 - a. 9 Buttons
 - i. Can use the setText and getText commands along with setEnabled and isEnabled is desired
 - ii. Checking for winning a matter of 8 brute force 3 button combinations (use && to link the buttons and || to link the combos)
 - iii. Probably need a new game method.
 - b. 9 integers
 - i. Can use 0, -1 and 1
 - ii. Checking for winning can utilize a summation approach
 - iii. Must find a way to get the 0, -1 and 1 to the screen
 - iv. Must find a way to block moves that are illegal
 - c. Two dimensional array
 - i. Can be integers, Buttons or both
 - ii. Very Flexible, but harder to use
 - iii. `int board[][] = new int[3][3];`

2. Alternating turns
 - a. Can use an int with %2
 - b. $\text{turn \%2} == 1$ or 0

3. Ties(there are a limited number of moves that can be made before a tie happens...think if...else if.... else if.... else)

4. Computer logic
 - a. Pick random
 - i. Use while true and break combo
 - ii. Pick a random number from 0-8 or 1-9 or two from 0-2
 - iii. Keep going until you find a blank spot
 - b. Defensive
 - i. Block potential opponent wins
 - c. Offensive
 - i. Complete a winning combo
 - ii. Set up a winning combo

Project Name	Assign 6-Final Project
App Name	TicApp
Frame Name	TicFrame

Rubric	
Basic Selecting X's and O's	45
Check for winning combinations	35
Frame appearance	35
TOTAL	115

Computer Guess Logic Bonus	20
Computer Blocks Bonus	10
Computer Finishes when there is a winning option bonus	10
Computer guarantees a tie bonus	25
TOTAL	65