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# Project description

- Hangman game
- Console-based
- Animated title/end screen
- Encryption to hide phrases from user
- Gallows graphic made up with the user's name
- Sound effects to engage the user
- Colour to enhance the UX



# Inspiration for the program

## Making a game

I wanted to apply what I've learned creatively.

The course work has been very theoretical, which is great for demonstrating knowledge, but doesn't result in a fun program.

I wanted users to appreciate the end product, even if they didn't understand the code.

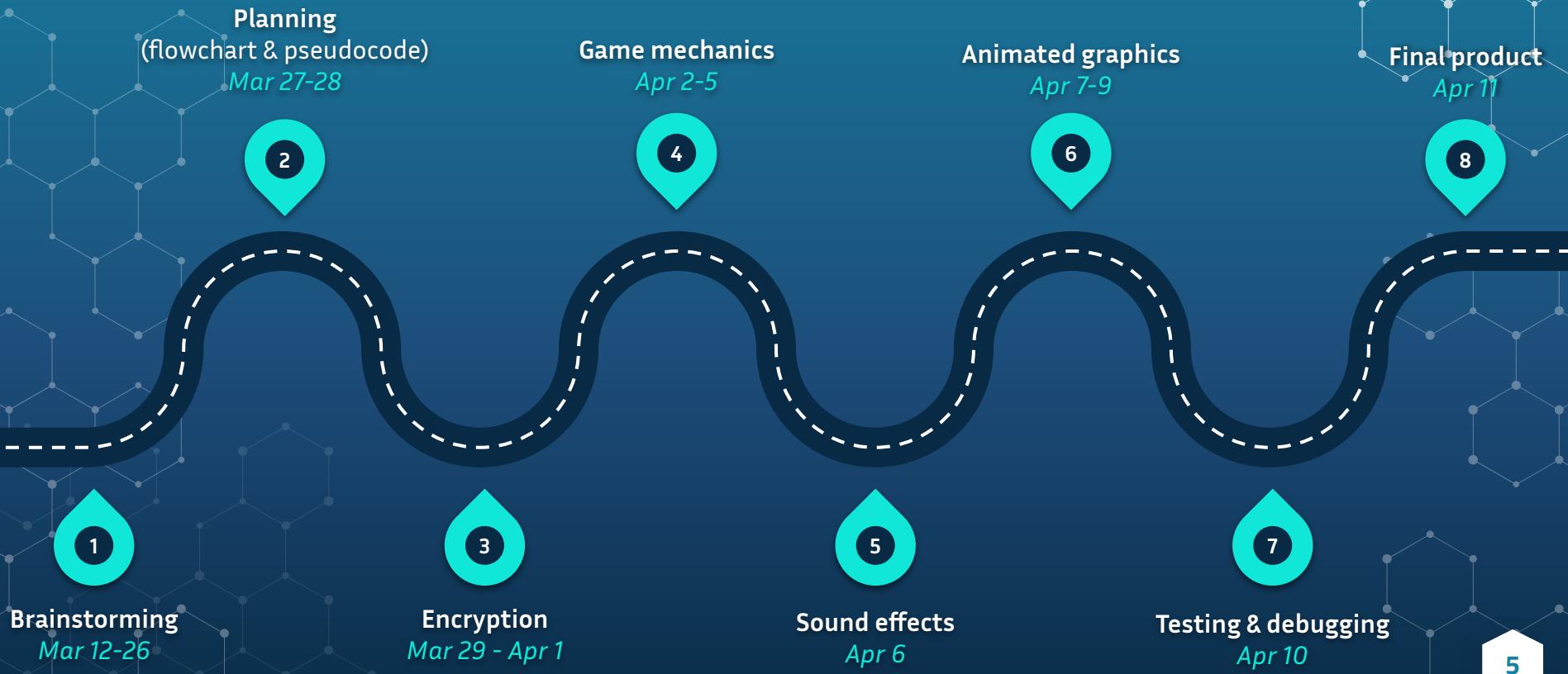
## Encrypting the phrases

I wanted to be able to send the program to my friends and family.

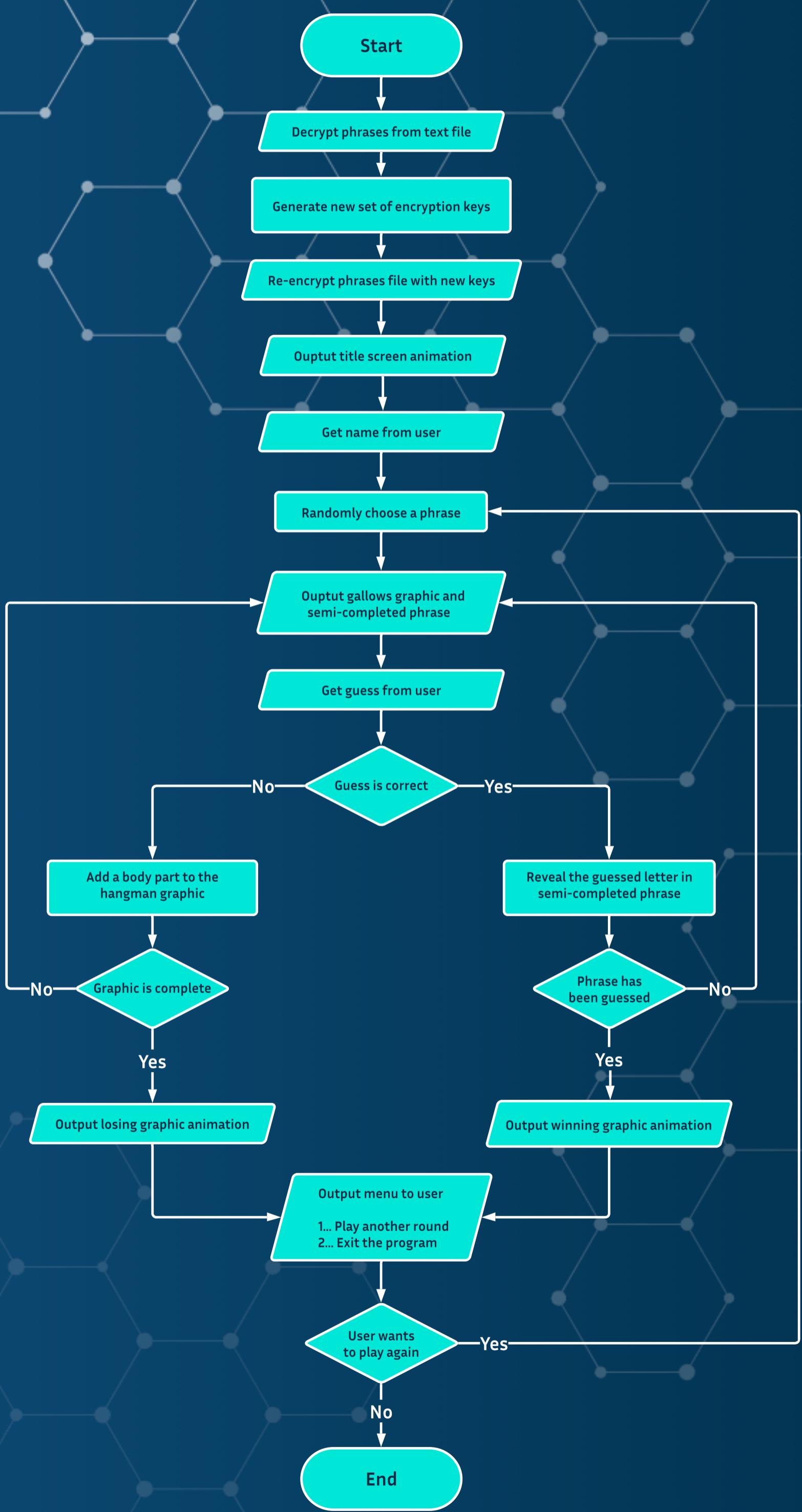
I didn't want the user to be able to peek at the phrases.



# Roadmap



# FLOWCHART



# PSEUDOCODE

While there are more lines in secrets file

Add key to keys array

While there are more lines in phrases file

Add encrypted character to phrases array

For elements in encrypted phrases array

Decrypt character

Shuffle order of phrases array

Generate new encryption keys

For elements in keys array

Send key to secrets file

For elements in decrypted phrases array

For characters in decrypted phrase

Re-encrypt character with newly generated keys

Send encrypted character to phrases file

Output title screen animation

Play "Startup" sound effect

Output instructions

Do

Prompt the user to enter their name

If the user input is invalid

Play "Incorrect" sound effect

Print "Invalid input"

While the user input is invalid

For characters in gallows graphic

Change character to one in the user's name

Do

Select a phrase at random from the phrases array

Do

Output gallows

Output semi-completed phrase

Get guess from user input

If the guessed letter is in the phrase

Play "Correct" sound effect

Add that letter to the semi-completed phrase

Else if the guessed letter is not in the phrase

Play "Incorrect" sound effect

Add a body part to the hangman graphic

Else

Play "Incorrect" sound effect

Print "Invalid input"

If the phrase has been guessed

Play "Win" sound effect

Output the winning animation

Declare the round finished

Else if the hangman graphic is complete

Play "Lose" sound effect

Output the losing animation

Declare the round finished

While the current round isn't over

Ask the user if they want to play again

If the user wants to play again

Play "Reset" sound effect

Else if the user doesn't want to play again

Play "Ending" sound effect

Print "Have a great day!"

Else

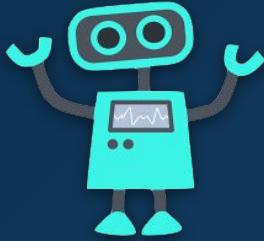
Play "Incorrect" sound effect

Print "Invalid input"

While the user wants to play another round

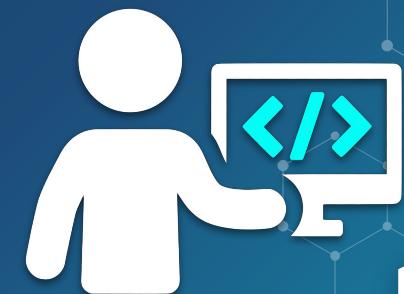
## New skills

- ArrayLists
- Lists
- Inheritance
- Class fields
- Class properties
- Try-catch statements
- Switch statements
- ASCII art
- ANSI escape sequences
- Reading from text files
- Writing to text files
- Java sound API
- Multithreading
- Custom built encryption



## Skills learned throughout the course

- If-else statements
- For loops
- While loops
- Do-while loops
- Argument passing
- Commands
- Queries
- String methods
- Access modifiers
- Non-access modifiers
- Multi-dimensional arrays
- Indexing through arrays
- Method overloading
- Imports
- Variable declaration
- Variable assignment
- User input
- StringTokenizer
- Sequential search
- Binary search
- Selection sort





# Useful resources

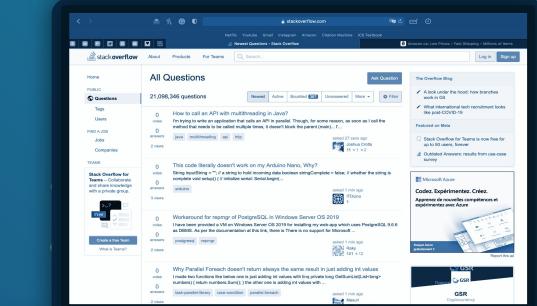
Reading and writing text files

Changing text colour with ANSI escape codes

Sending emails with the Java Mail API

Playing audio with the Java Sound API

Multithreading (used for playing background music)





# Reflection

The criteria have been clear for all the assignments we have done up until this point. The culminating task was very open-ended, with the idea that we would apply our knowledge creatively. While making my hangman game, I realized that the hardest part of any project is the brainstorming process. Once I came up with an idea, the implementation was usually fairly straight forward. For example, after I thought of adding sound effects, it only took me a couple of hours to figure out how to use the Java Sound API. After high school, I would like to go into computer science, so this realization will likely prove useful for future projects. Research is key, and if you can think of an idea, there is probably a way it can be accomplished.