De La Salle University- Manila
Gokongwei College of Engineering

LBYCPA1
Programming Logic and Design Laboratory

Project Proposal

<Alvin and the Tic-Tacs>

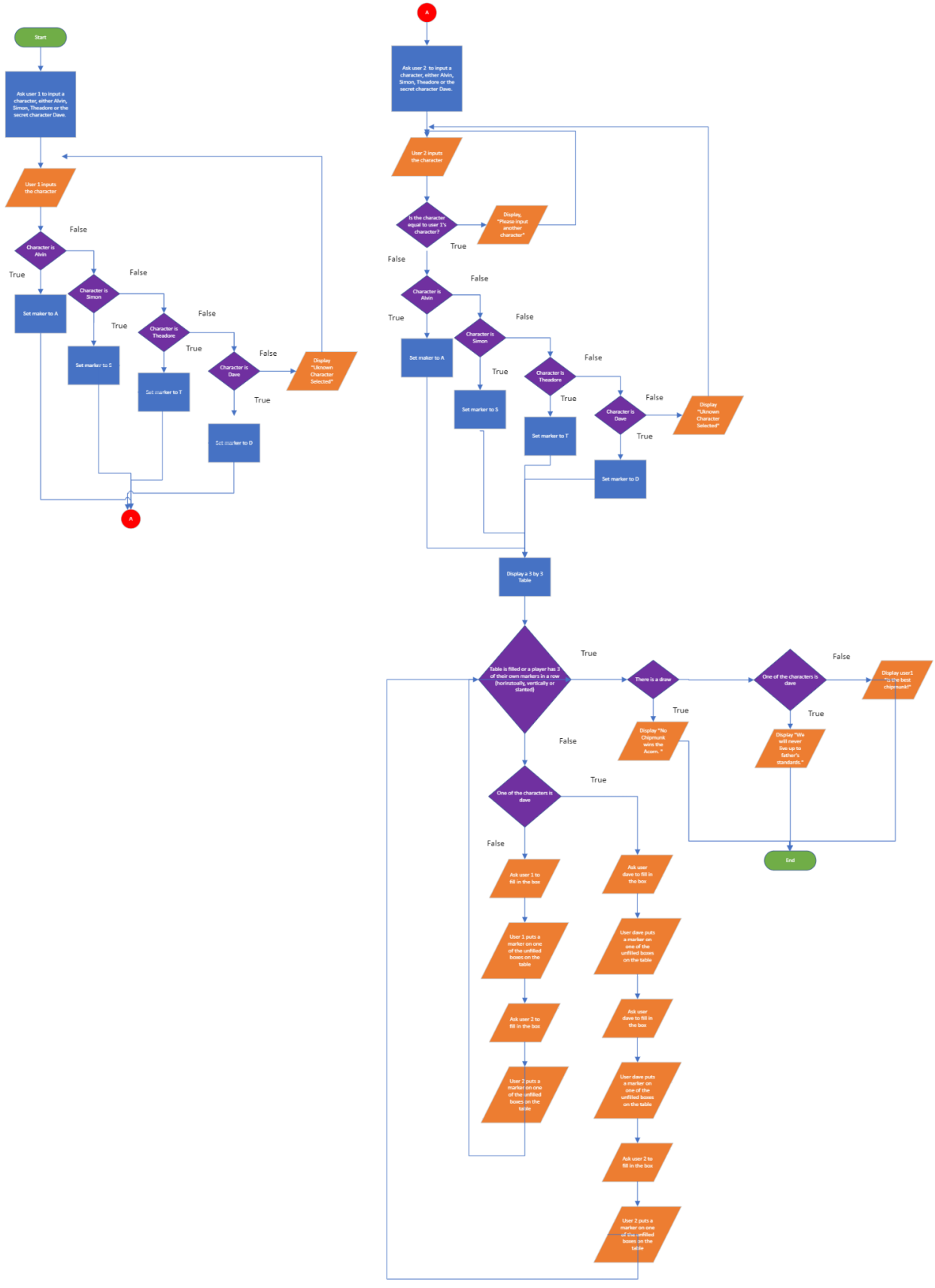
<Stanley C. Ng>
<Enzo Linus B. Ong>
<Anton Miguel W. Roldan>

Project Description

This program will allow two players to play tic-tac-toe without the need for pen and paper. The first player will select a character from the list, then the second player will select a character different from player one's. The character chosen will have different markings on the grid. For example, character A will have Xs on the grid while character C will have Os. One person will select where they would place their mark on the grid. Then the second person would place their mark on their selected place on the grid. This would continue until all the spaces on the grid are filled. If there are 3 matching marks lined up together (vertically, diagonally, or horizontally), the code will output that mark as the winner. If the grid is filled without 3 matching marks, the code will output a draw. If the user tries to input their mark on an already filled spot on the grid, the code will reject it and the user has to try again.

IPO

Input	**Process**	**Output**
The user will input the character of choice as a string ("Alvin", "Simon" or "Theadore"). A secret character ("Dave") will not be displayed to the user, but if the user is to input "Dave", the character will be used. Once the first user chooses, the second user will then be able to choose, but not the same character as the first user.	Player number 1 will be prompted to click on one of the boxes in a 3 by 3 table. The box they click will then show a marker, an A if they chose Alvin, a S if they chose Simon, and a T if they chose Theadore. However, if they chose Dave, the marker will be a D, and they will be allowed to place 2 markers in a row for each turn. Once done, the next player will click on a box and their respective marker will be shown. Both players will then take turns clicking on boxes in the table. A player will win if 3 of their markers connect in either a horizontal, vertical or slanted line. The game will stop once a player wins, or if all the boxes are filled out with no winner.	The code will display, character "is the best chipmunk!". However, if Dave wins, the code will display "We will never live up to father's standards." If no one wins, the code will display, "No chipmunk wins the acorn."


Start
Ask user 1 to input a character, either Alvin, Simon, Theadore or the secret character Dave.
User 1 inputs the character
Character is Alvin
True
False
Set maker to A
Character is Simon
True
False
Set marker to S
Character is Theadore
True
False
Set marker to T
Character is Dave
True
False
Set marker to D
Display "Unknown Character Selected"
A
A
Ask user 2 to input a character, either Alvin, Simon, Theadore or the secret character Dave.
User 2 inputs the character
Is the character equal to user 1's character?
True
Display, "Please input another character"
False
Character is Alvin
True
False
Set maker to A
Character is Simon
True
False
Set marker to S
Character is Theadore
True
False
Set marker to T
Character is Dave
True
False
Set marker to D
Display "Unknown Character Selected"
Display a 3 by 3 Table
Table is filled or a player has 3 of their own markers in a row (horintontly, vertically or slanted)
True
There is a draw
True
Display "No Chipmunk wins the Acorn. "
False
One of the characters is dave
True
Display "We will never live up to father's standards."
False
Display user1 "is the best chipmunk!"
End
False
One of the characters is dave
True
Ask user dave to fill in the box
User dave puts a marker on one of the unfilled boxes on the table
Ask user dave to fill in the box
User dave puts a marker on one of the unfilled boxes on the table
Ask user 2 to fill in the box
User 2 puts a marker on one of the unfilled boxes on the table
False
Ask user 1 to fill in the box
User 1 puts a marker on one of the unfilled boxes on the table
Ask user 2 to fill in the box
User 2 puts a marker on one of the unfilled boxes on the table

Methodology

The goal is to first make a pseudo code and flowchart to set up the code and to provide an outline of what the program is to accomplish. Once finished, a code will be made based on the outlines provided by both the pseudo code and flowchart. The inputs of the tic-tac-toe will be used with the keyboard numpad, with the numbers 1, 2, 3 being the bottom row, 4, 5, 6 being the middle row, and 7, 8, 9 being the top row. A number can only be inputted once. Each player will take turns inputting a number until one player wins or a draw occurs.

Description of Python Concepts:
Decision Structures:
If/then statements will be used to decide whether the game outcome is a win (if there are 3 of the same markings connected), or if the outcome is a draw.

Dictionary:
The tic-tac-toe table will be made through the use of a dictionary to show the grid outlines.

Modules:
Modules will be used to simplify the code and allow for different people to be working on different parts of the code at once. This will also make it easier to call different modules and functions into the code as well.

Schedule of Activities

Person(s) in charge	Duty(s)	Due Date
1 person	Pseudocode	April 24, 2023
2 people	Flowchart	April 24, 2023
All	Finish Code	April 31 ,2023
All	Finish Documentation	April 14, 2023

References

1. Jupyter Notebook
2. Instructor's lecture notes

Tic Tac Toe Sample Code:

Shah, J. (2019, November 14). *The classic tic-tac-toe game in python 3*. Medium. Retrieved March 17, 2023, from https://medium.com/byte-tales/the-classic-tic-tac-toe-game-in-python-3-1427c68b8874