



ARCADE

Arranged for :

Dr. Ahmed Mahmoud

Team members :

Moayad - Ahmed - Abdulmaseeh

Lingua Franca
Target (C)

Arcade – A Mini Game Collection in Lingua Franca

Whac-A-Mole | Tap War | Rock, Paper, Scissors

Authors:

Moayad Mohamed

Abdulmaseeh Nabil

Ahmed Mahmoud



Language: Lingua Franca (C target)

Project Overview

An arcade game built using the Lingua Franca framework.

- Contains 3 games:

1. Whac-A-Mole

2. Tap War

3. Rock, Paper, Scissors

- Event-driven and reactive game logic.

Purpose and Goals

- Showcase interactive programming using reactors.
- Developing modular game design via event inputs.
- Educational demo for Lingua Franca applications.

System Architecture

- Main Reactor: Games
- Sub-Reactor: GameLogic
 - Inputs:
 - user_input (game selector)
 - mole_hit (Whac-A-Mole)
 - tap_input (Tap War)
- rps_choice (Rock, Paper, Scissors)

**WHAC-A-
MOLE**



Game 1 - Whac-A-Mole

- Random mole position (1–9).
- User inputs hit position.
- Compares hit with actual mole location.
- Displays feedback and spawns next mole.



Game 2 - Tap War

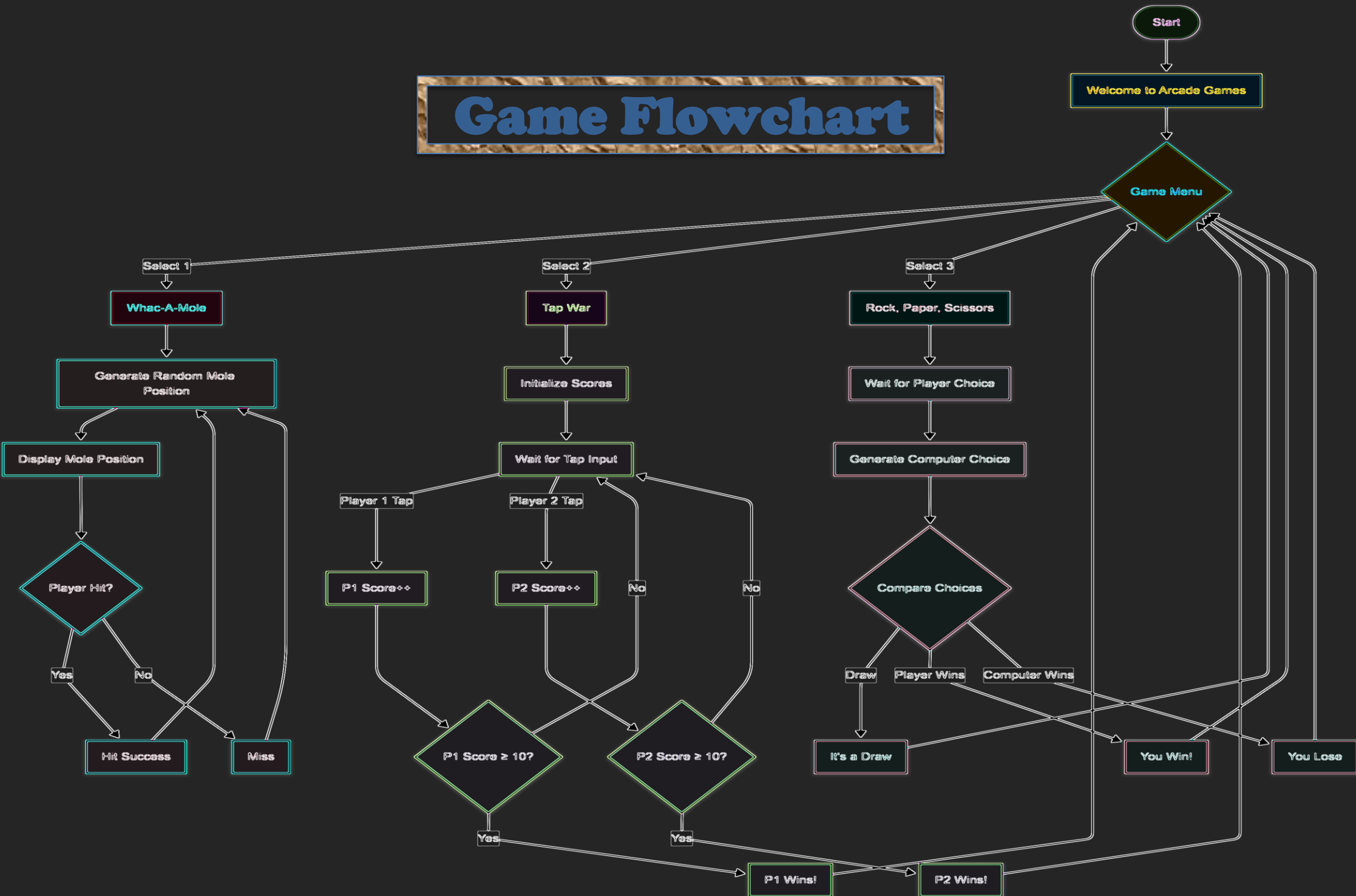
- Two players tap alternately (1 or 2).
- Score is tracked for both.
 - First to 10 wins.
- Game ends and prompts for new selection.



Game 3 - Rock, Paper, Scissors

- Player selects 1-3.
- Computer randomly selects 1-3.
- Outcome: Draw, Player Wins, Player Loses
- Game resets after round.

Game Flowchart



Key Lingua Franca Concepts

- Reactor-Based Design
- State Variables: `current_game`, `tap1_score`, etc.
- Reactions: Triggered by startup and inputs.
- Event Handling: Real-time decision logic with immediate output.



Advantages and Challenges

Advantages:

- Modular and reusable
 - Easy to extend
- Clean input handling



Challenges:

- No visual interface
- Manual testing via inputs
- Console-based interactions



Future Improvements

- Add GUI using frontend bridge
 - Timer-based reflex games
 - Multiplayer support
- Score persistence and leaderboard