

Tic Tac Reflex Toe

A MADT 5274 CAPSTONE PROJECT II

Karayilanoglu , Dogukan
C0755495

Pardillo , Rosette Lopez
C0768425

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1 Introduction

Tic Tac Reflex Toe is a Tic Tac Toe mobile application game.

Tic Tac Toe is also known as noughts and crosses, or Xs and Os is a strategical game for two players who take turns marking the spaces in a 3 by 3 grid. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row is the winner

This document will discuss how *Tic Tac Reflex Toe* Development Plan.

- Implementation Design
- Mobile Application Flow
- Implementation Timeline
- Acceptance Procedure
- Tools and Technologies

1.1 Objective

As there are many Tic Tac Toe game applications available in the market, this project aims to be able to create a lite, simple, user-friendly, fun application Tic Tac Toe game. This project is also beneficial for the development members to fully understand real time applications which is an interesting and useful skill for a mobile application developer.

2 The Context of Study

This mobile application project aims to deliver a stable mobile application software that covers important features that are required for a Capstone-Level Project.

This mobile application project will be implemented in IOS using Swift.

Aside from its technical complexity, this mobile application project should allow developers to apply new knowledge namely, saving data into server, and Real-Time application.

Tic Tac Reflex Toe Mobile Application targets users which of different ages who like to play the classic Tic Tac Toe game.

With *Tic Tac Reflex Toe* Mobile Application handy and user friendly, the user can enjoy playing Tic Tac Toe, to anyone, anywhere, anytime, online or offline.

3 Defining and Analyzing the Problem

Application Level. Tic Tac Toe game when played with highly intellectual players usually gets a draw.

Development Knowledge Level. Development Members have no experience implementing a Real Time Application

4 The Proposal of a Solution

Application Level. *Tic Tac Reflex Toe* refrains players to experience a draw, it is design to always declare a winner.

Development Knowledge Level. Implement *Tic Tac Reflex Toe*, making it real time to be enjoyed online by multiple players.

5 Competitive Analysis

5.1 Strategy

5.2 Similar Applications

5.3 What makes Tic Tac Reflex Toe Unique

6 Marketing Plan

6.1 Target Users

Tic Tac Reflex Toe is for all ages. Anyone with a smart mobile device who is up for games can play with this game.

6.2 Network

6.2.1 Social Media

In this Technological Era, Social Media is very influential. The fact is, people tend to spend so much time online.

- Facebook
This page will advertise the application, give instructions and will give support to users who have queries
- Instagram
This account will advertise the application, give instructions and will give support to users who have queries
- Twitter
This account will advertise the application, give instructions and will give support to users who have queries
- Youtube
This channel will have tutorial videos, reviews and gameplay videos.

6.2.2 Friends

Development Team's friends can share to their network about the *Tic Tac Reflex Toe*. Friends can also share social media posts. Social Media Influencer friends could also do shout outs to help advertise the app.

6.3 Retaining User Engagement

Aside from offering a free cool app, to retain user engagement, *Tic Tac Reflex Toe* development team aims to deliver a fast performing, zero-bug and easy-to-use application.

Once available in the market, *Tic Tac Reflex Toe* development team swears to be responsive in App Store user comments.

Tic Tac Reflex Toe Support can also be reached 24 hours through email, Facebook, Instagram, Twitter, and Youtube.

6.4 Track User Engagement

Tic Tac Reflex Toe development team will keep track on the application's market status. Statistics will be monitored using tools. User engagement will also be tracked by checking user ratings and number of downloads. These information can be retrieved in Apple's App Store.

6.5 Increasing User Engagement

- *Tic Tac Reflex Toe* will remain active in advertising in Social Media.

- *Tic Tac Reflex Toe* will also have continuous updates for improvements and will remain responsive to user queries in both social media and application store.

7 Cost

7.1 Application

Tic Tac Reflex Toe is free and for everyone to enjoy

7.2 Development

This application will need two development resources to meet Aug 21, based on MADT 5247 timeline. Initially, this will be implemented in IOS and deploying IOS application will need Apple Developer subscription that costs 299USD for organization. Below is a rough estimation if this will be implemented by a small company. This estimation is upto delivery period only. Support timeline is not included.

Resources	Quantity	Est Cost
Machines & Computers	2	\$2399 est Macbook Pro tax excluded
Apple Developer Subscription	1	\$299 USD tax excluded
Developers & Testers	2	\$45/hr average mid level developers
Testing Devices(Iphones)	2	\$1379 est price tax excluded
Internet Connection	2	\$30 est on fibre connection tax excluded

Estimated Development Cost

8 Monetization Strategy

The very purpose of implementing *Tic Tac Reflex Toe* is for the development team to learn developing real-time application.

Thus this application is for FREE.

And if *Tic Tac Reflex Toe* will be a success, adding advertisements can be accepted.

9 App Features

- **User Registration**

New user can register to enjoy playing the game. User details needs to be inputted to be able to register successfully.

- **User Profile**

Logged in user will be able to see his profile details in this page.

- **Log In and Log Out**

User will be able to log in and log out using different devices.

- **Dashboard**

This is the home page of the application. This also shows online users list who are playing or who is available to play.

- **Real-Time User Interaction**

Users will be able to enjoy playing the game with a real opponent as long as users are connected to the internet.

- **Offline Mode**

User can play offline mode using only one device.

- **User Game Standing**

The user can view user game standing. This can be seen in User profile page.

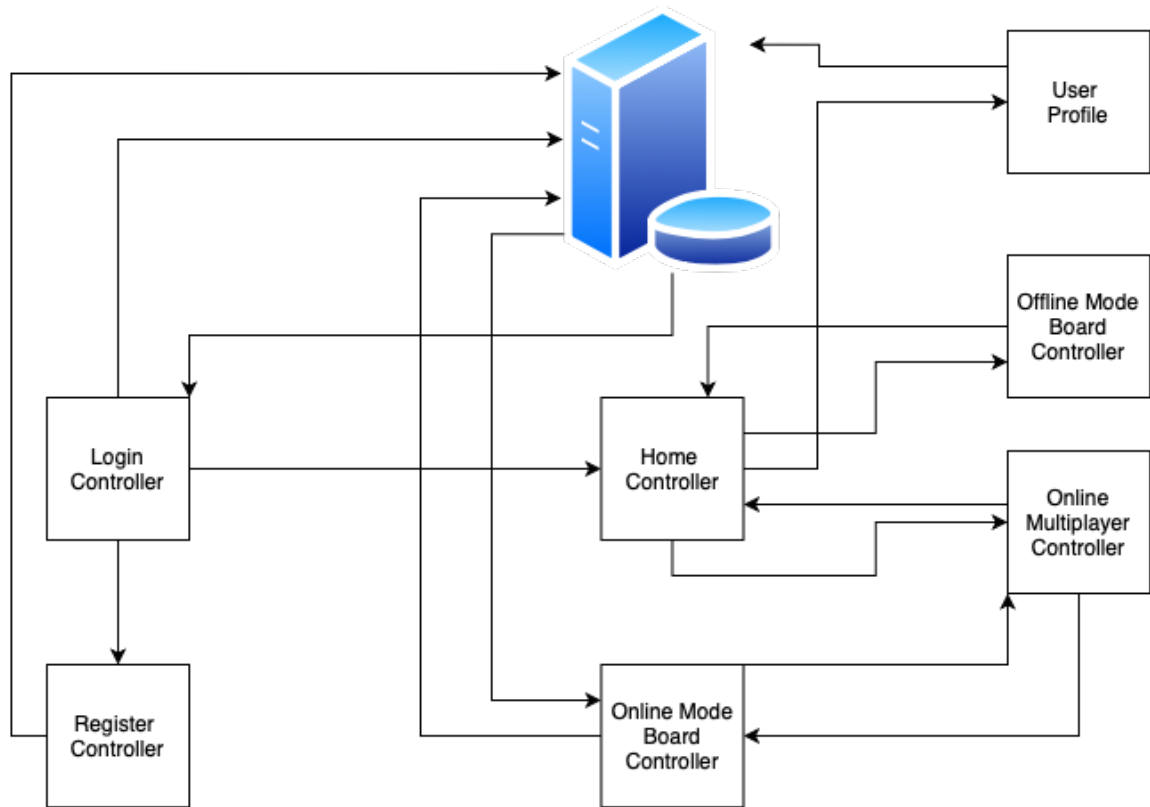
- **Notification**

Users that are being invited to play a game will be notified.

10 USE CASES

10.1 Flow

Below figure is a mock up on how the application is designed to flow

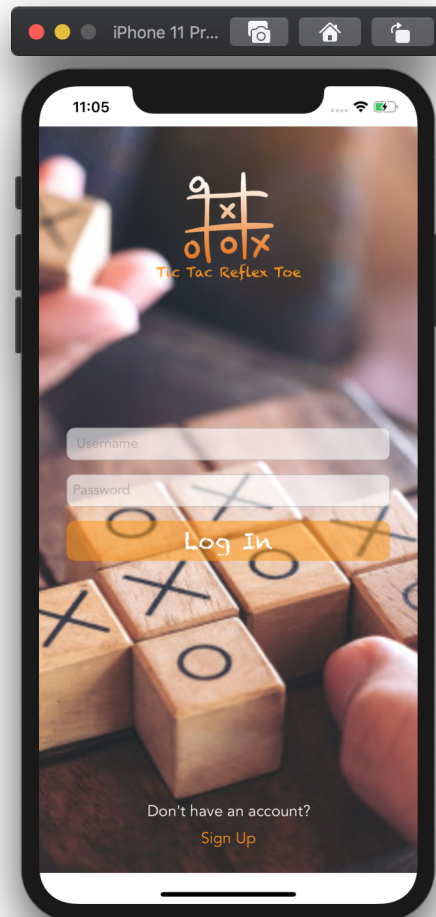


Application Mock Up

10.2 Design

Below images shows the design plan of how the application should look in an iPhone device.

Log In Controller



Log In Page in Iphone

Game Board Controller



Game Page in Iphone

11 Project Plan

11.1 Timeline

This project is aimed to finish in time for project scheduled presentation, 24th of August 2020.

11.1.1 Sprint Timeline

This will be a Three-Sprint project, each sprint has 3 days and estimated 15 hours per developer on each sprint.

	DATE	SPRINT		
		1	2	3
	11-Aug-20			
	12-Aug-20			
	13-Aug-20			
	14-Aug-20			
	15-Aug-20	FAMILY TIME. WEEKEND.		
	16-Aug-20			
	17-Aug-20			
	18-Aug-20			
	19-Aug-20			
	20-Aug-20			
	21-Aug-20			
	22-Aug-20	FAMILY TIME. WEEKEND.		
	23-Aug-20			
	24-Aug-20			

Sprint Timeline

11.1.2 Sprint Delivery

Each Sprint has specific deliveries in order for the project to be successful.

SPRINT 1

- ✓ Setup Firebase & Implementation of Database
- ✓ Setup Development Environment
- ✓ Start Mobile Application Layout & Navigation
- ✓ Layout for Register, Log In and Log Out

SPRINT 2

- ✓ Delivery of Minimum Valuable Product (MVP)
- ✓ Mobile-Firebase Connection
- ✓ User Authentication
- ✓ Game Capable

SPRINT 3

- ✓ Full Feature Functionality
- ✓ Application of business constraints
- ✓ Application stability

Sprint Deliveries

11.2 Tasks Breakdown

11.2.1 Gantt Chart

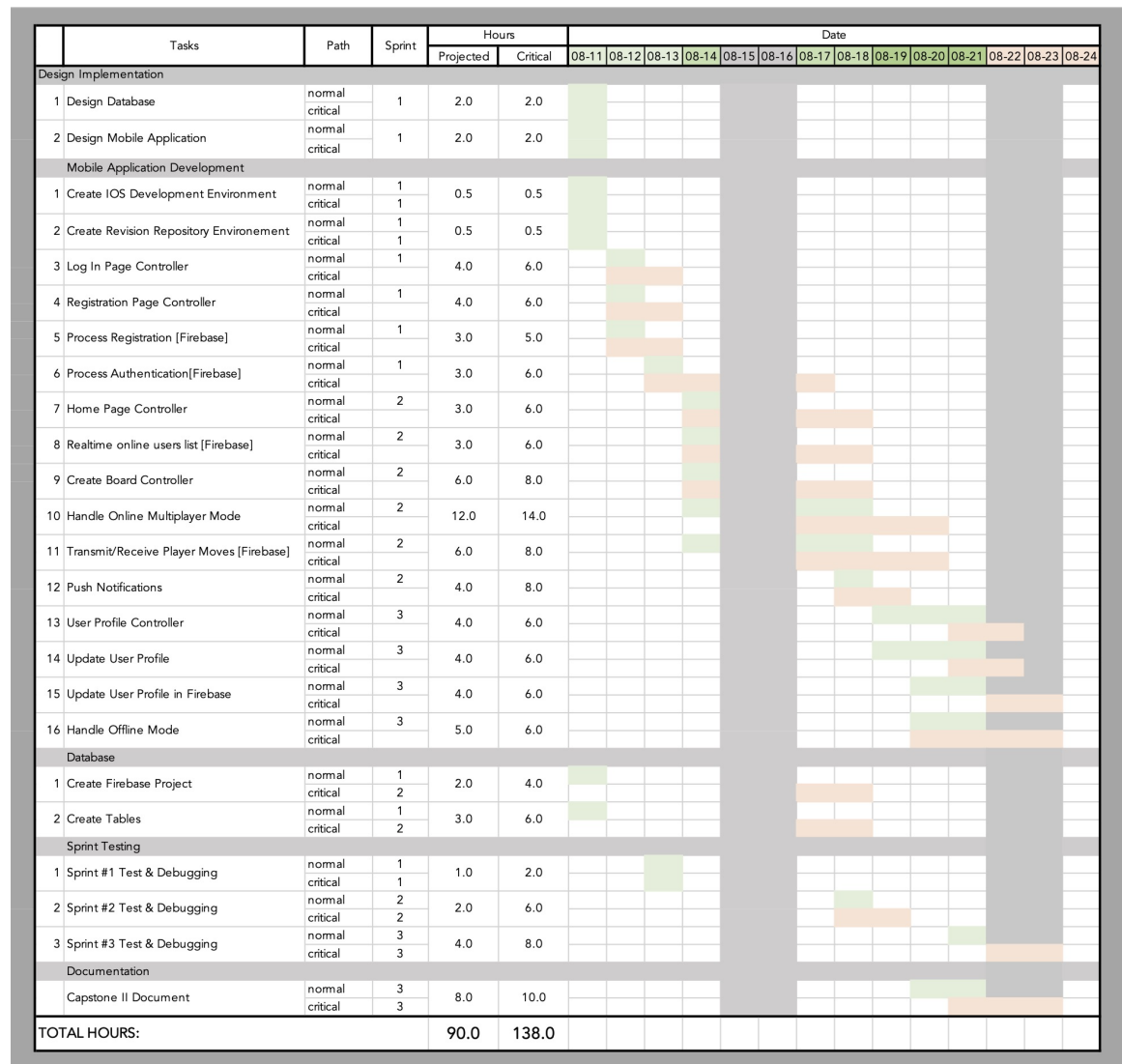
Listed below are the tasks broken down to small items and are plotted to sprint dates. Along with these list are estimated number of hours each task to complete.

	Tasks	Sprint	Hours	Date											
				08-11	08-12	08-13	08-14	08-15	08-16	08-17	08-18	08-19	08-20	08-21	
Design Implementation															
1	Design Database	1	2.0												
2	Design Mobile Application	1	2.0												
Mobile Application Development															
1	Create IOS Development Environment	1	0.5												
2	Create Revision Repository Environement	1	0.5												
3	Log In Page Controller	1	4.0												
4	Registration Page Controller	1	4.0												
5	Process Registration [Firebase]	1	3.0												
6	Process Authentication[Firebase]	1	3.0												
7	Home Page Controller	2	3.0												
8	Realtime online users list [Firebase]	2	3.0												
9	Create Board Controller	2	6.0												
10	Handle Online Multiplayer Mode	2	12.0												
11	Transmit/Receive Player Moves [Firebase]	2	6.0												
12	Push Notifications	2	4.0												
13	User Profile Controller	3	4.0												
14	Update User Profile	3	4.0												
15	Update User Profile in Firebase	3	4.0												
16	Handle Offline Mode	3	5.0												
Database															
1	Create Firebase Project	1	2.0												
2	Create Tables	1	3.0												
Sprint Testing															
1	Sprint #1 Test & Debugging	1	1.0												
2	Sprint #2 Test & Debugging	2	2.0												
3	Sprint #3 Test & Debugging	3	4.0												
Documentation															
	Capstone II Document	3	8.0												
TOTAL HOURS:			90.0												

Gantt Chart

11.2.2 Critical Path

The project is prepared for development worst case schedule to make sure that the project will still be delivered on time. The best development time projected is only 90.0 hours but with worst case, total development hours would reach to 138.0. To make it possible, weekend work is required.



Critical Path

12 Acceptance Procedure

- Successful user registration
- Successful user log in
- Successful user log out
- Successful interaction of game play

13 Tools and Technologies

- **XCode 11.4**
Integrated Development Environment that will be used
- **Swift 5.0**
Programming language
- **Firebase Realtime Database**
Stores user data and player actions
- **Photoshop**
Visuals Editing
- **Testing Devices**
 - XCode Simulator
 - iPhone XS Max
 - iPhone X

14 Bibliography