VR Kart Game

PC / MAC

TABLET

PHONE

Getting Started

Overview

Game Set up
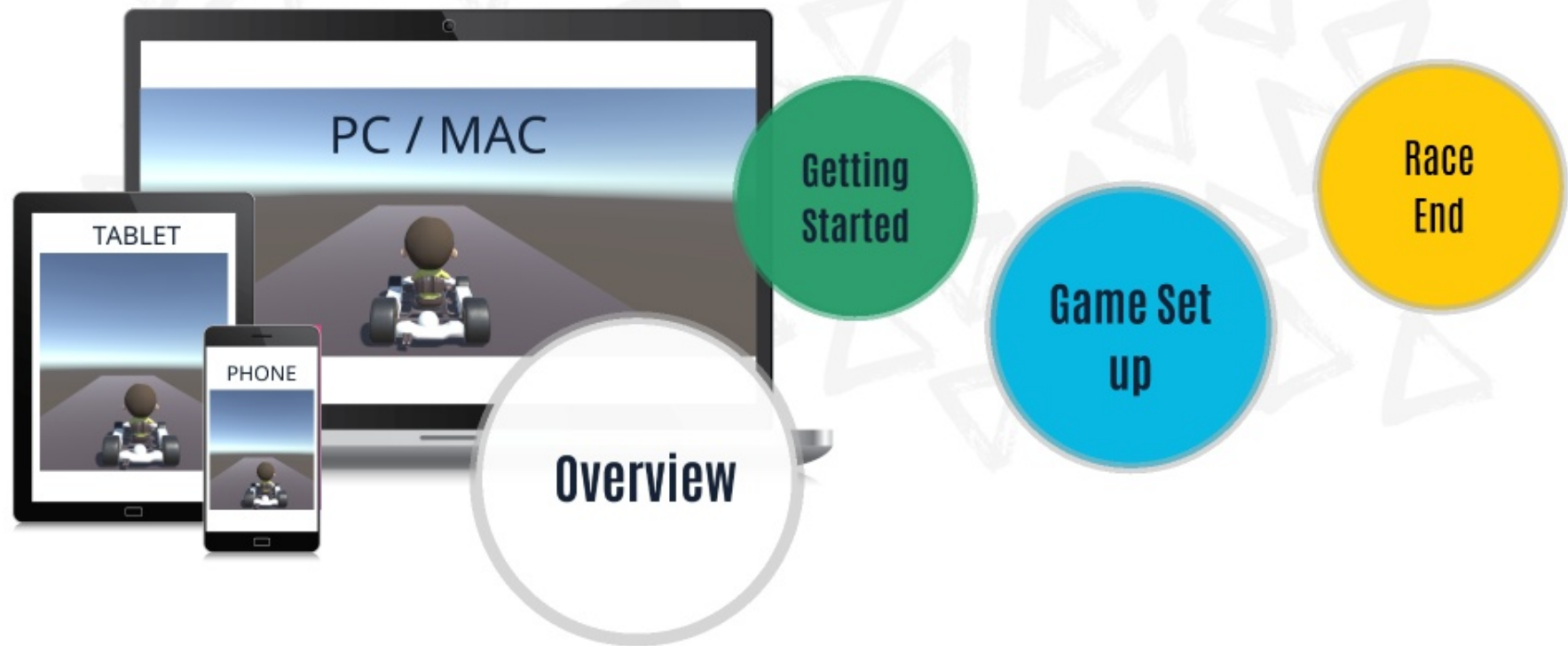
Race End

Objective

- Mario Kart like racing game
- Created using Unity3D
- Multiplayer Online
- Oculus Rift VR
- Gaming PC
- Mobile Devices
- Oculus Gear VR

Virtual Reality

Requirements

Timeline

Oculus Virtual Reality Units

Samsung Gear Vr

Oculus Go

Oculus Quest

Oculus Rift

Requirements

- Controls a kart
- Fires rockets
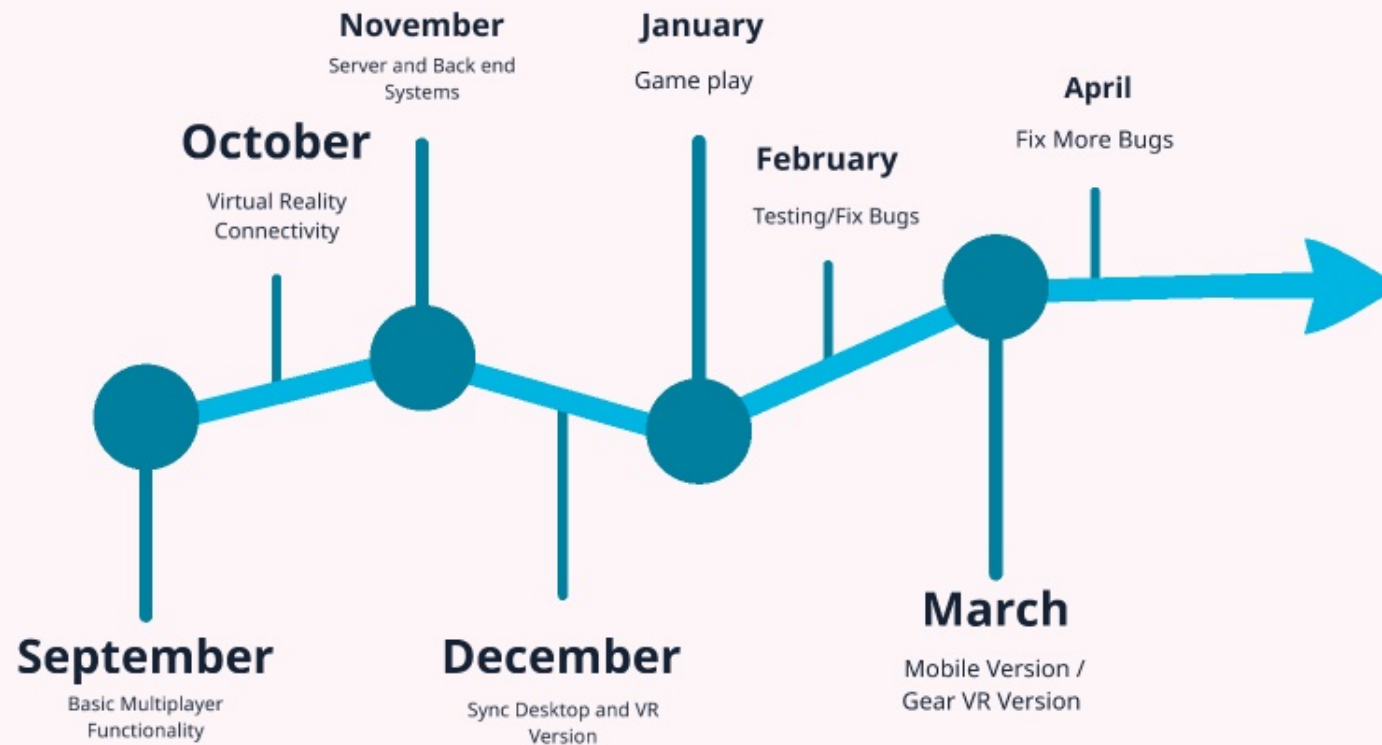- Aims with a crosshair
- Keyboard controls
- Keyboard controls kart

- Controls a kart
- Fires rockets
- Aims with a crosshair
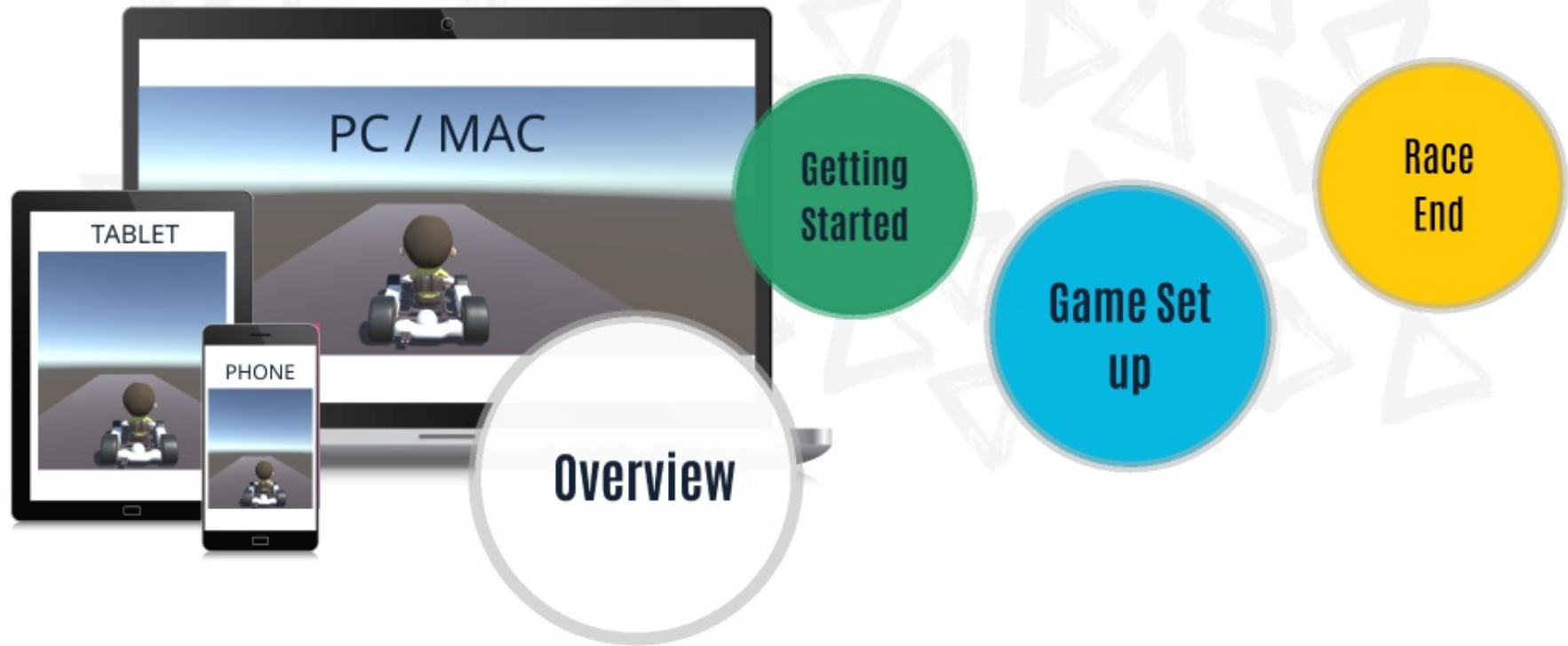- Touch screen controls
- Controls kart movement

- Controls a Bike
- Fires a VR Gun
- Phycially aims gun
- Oculus touch controls
- Turns bike with touch controls

Timeline

November
Server and Back end Systems

January
Game play

April
Fix More Bugs

October
Virtual Reality Connectivity

February
Testing/Fix Bugs

September
Basic Multiplayer Functionality

December
Sync Desktop and VR Version

March
Mobile Version / Gear VR Version

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User Login & Registration

Step 1

Step 2

Step 3

Design Proposal

C#(Unity)
==> Java

AWS Virtual Machine

Stored in Docker container

User Log-in

JAVA

Connect to a mongoDB

Verify user and password details

Register New Users
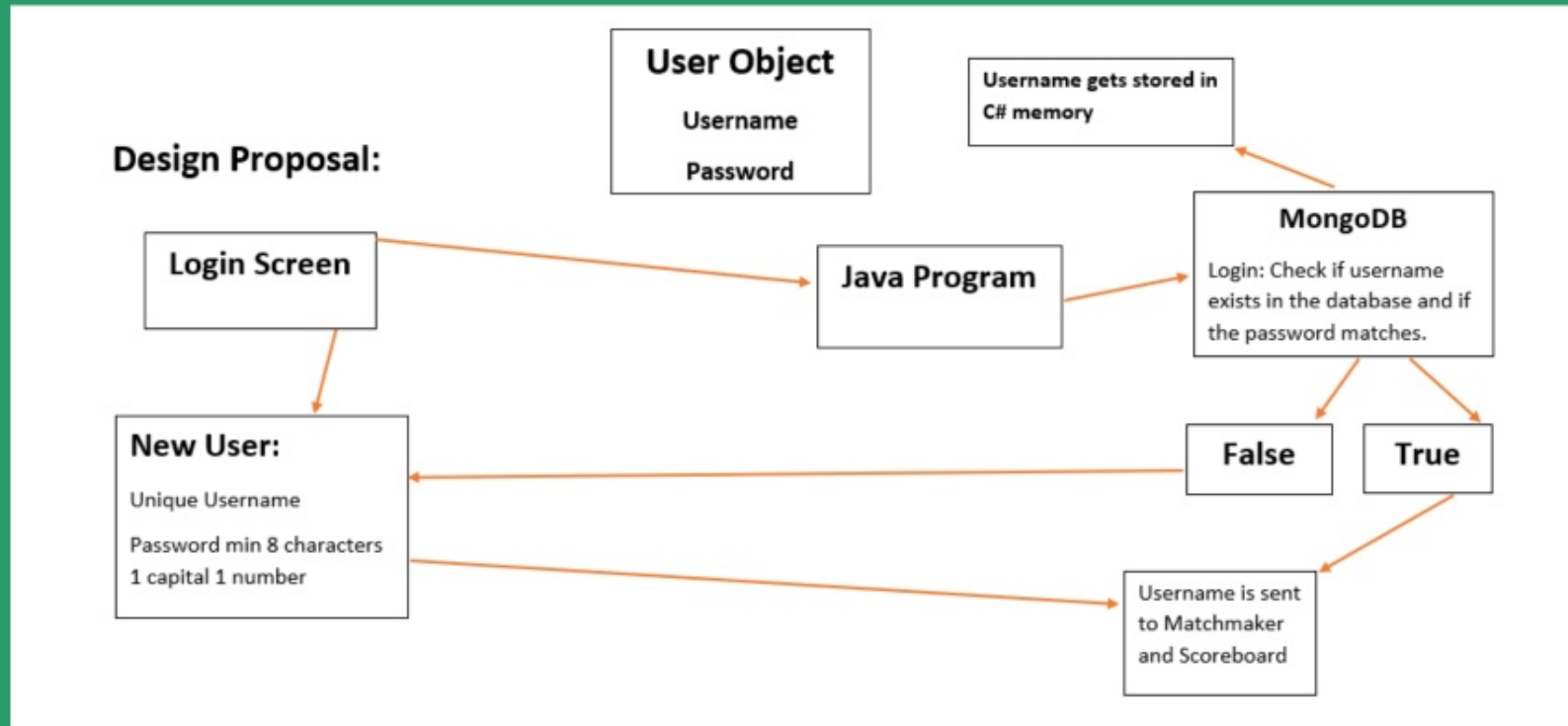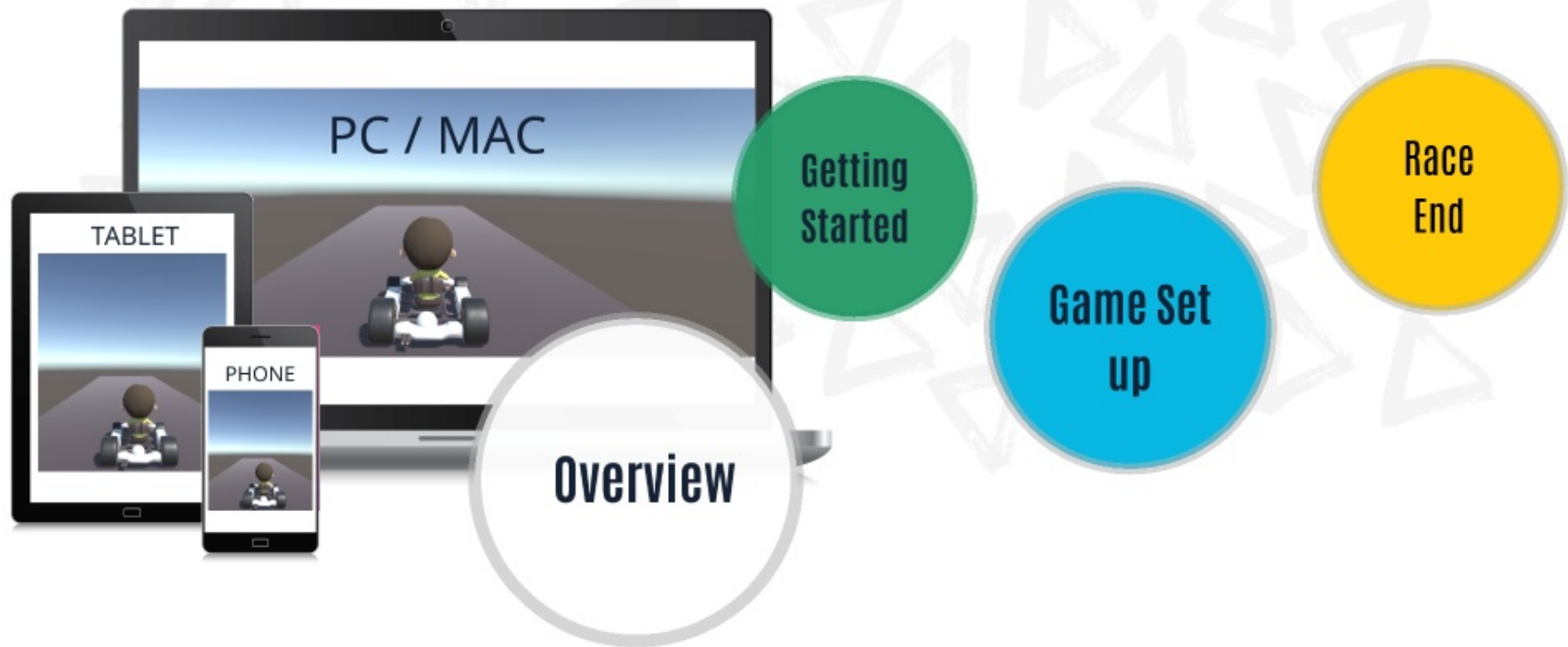
User is verified

Now to find a race

User-name is also sent to the scoreboard database

Design Proposal:

User Object

Username

Password

Username gets stored in C# memory

Login Screen

Java Program

MongoDB

Login: Check if username exists in the database and if the password matches.

New User:

Unique Username

Password min 8 characters
1 capital 1 number

False

True

Username is sent to Matchmaker and Scoreboard

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Race End

Match Maker

- Go Lang
- Redis DB
- AWS Virtual Machine

Redis DB

Desktop

Redis DB

Username stored in C#

In memory

User presses host and username and IP address is sent to Redis database

```
HOST        Find Game
```

Sends Request to database

REDIS DB

Username and IP address is stored as a struct and added to a list of users who want to host a game

User presses find game the list of

Host names is displayed on screen

MATCH MAKER SCREEN

Username 1	Join
Username 2	Join
Username 3	Join

User picks game they wish to join

Sends then to game lobby and wait for

Others to join

GAME LOBBY

Players wait for a certain time for other players to join, after that they are brought to the game

Host a Game-
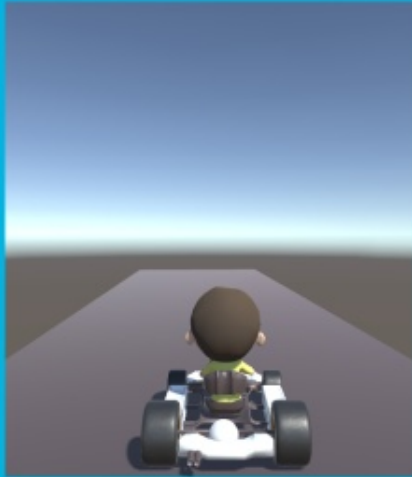user-name & IP address sent to database and adds to list

Find a Game-
sends a request to DB & pulls back a list of user-names hosting

Join a Game-
user picks a game & they are brought to the game lobby to wait for other players

Desktop

- Desktop players will be driving a kart
- Keyboard controls
- Ability to fire rockets at other players
- Re-spawn when hit by a rocket or fall off track
- Desktop players will be able to see VR players (won't have same interaction as VR)

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Game Set up
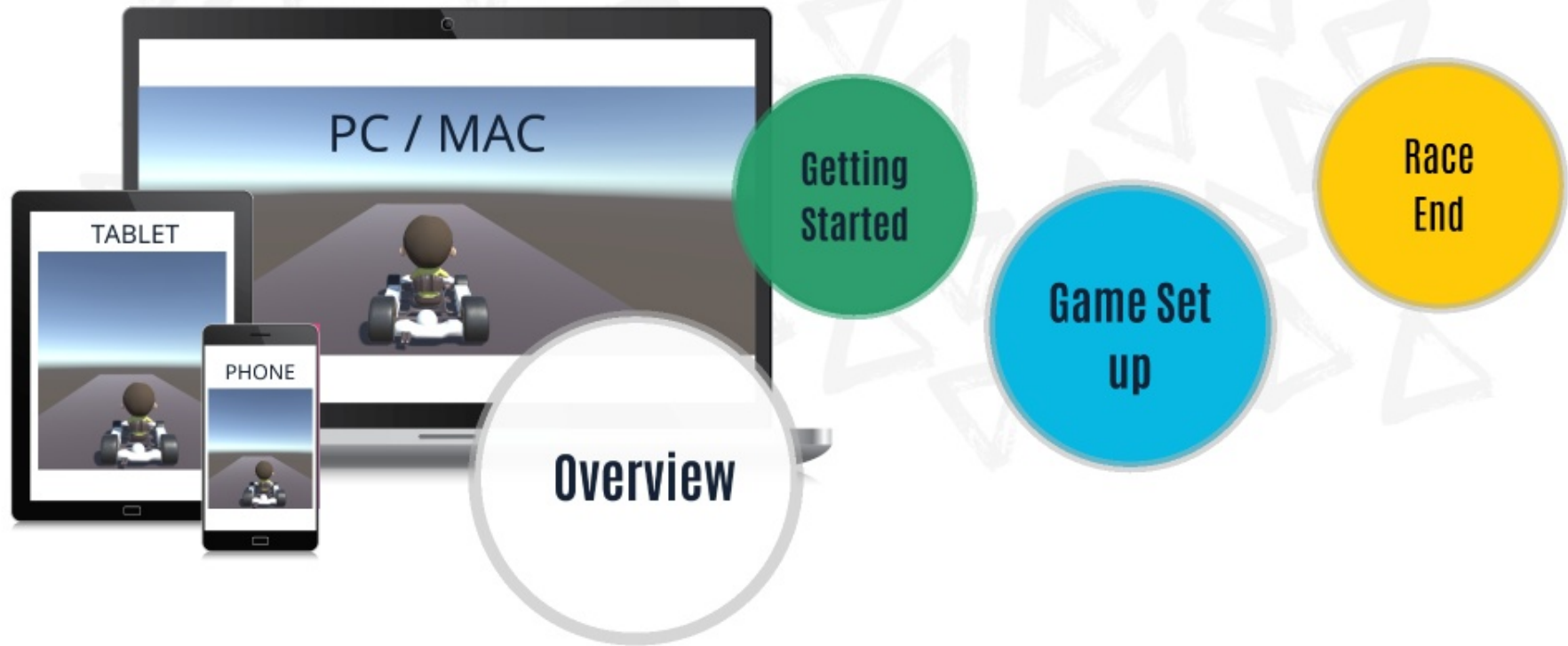
Race End

VR, Race End, Leaderboards

VR Racer

MariaDB

MariaDB

Desktop will see VR arm movements

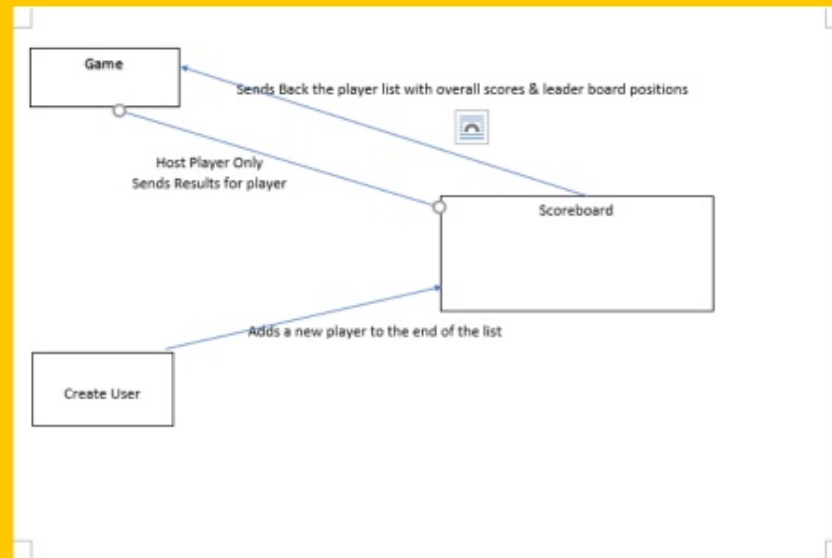VR will have the ability to aim in a 360 degrees

Race End

C#(XML) ==>
Python

Updates Global
Leaderboard

Race Times/
Fastest Times

Returns Global
Position

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