Milestone two

SOFTWARE DEVELOPMENT 602

NMIT

PRAPTI ANKUSH MANE - 13491449

Contents

[Unity’s Background, Strength and Weaknesses 2](#_Toc54723685)

[What is SQLite? 3](#_Toc54723686)

[What is SQLite access with an ORM? 3](#_Toc54723687)

[Generics in C# 3](#_Toc54723688)

[Bibliography 4](#_Toc54723689)

# Unity’s Background, Strength and Weaknesses

Unity is an application most used for Game development. It helps render both 2D and 3D content. Unity is broadly used for 3D modelling as well as creating virtual reality and augmented reality-based content. It is also used for developing cross platform development which is helpful as it is less time consuming and supported by all operating systems. Unity supports two languages for scripting C# and JavaScript, for my project we have scripted the whole game using C#. (Anurag, 2018)

The assets store is an added bonus as unity has provided some free assets for users to download and use but some are paid assets which can also be used if users are willing to pay for it, but I have realized for testing purpose free assets are helpful.

The technical support provided by unity with the documentation on the website is a guide which helps to navigate through the application and comes in handy during the development phase.

Unity has several online tutorials to explain in depth the use of unity.

Unity game engine is easy to use, once you understand how it works, writing scripts using visual studio makes it easy to build the game.

Unity game engine is mainly used to create video games, I have used it to create a 2D based game with multi-players and a login system in place using SQLite to store database as it is helpful to use SQLite for an android game as it stores the database in a local file which can be accessed using SQLite manager. It was easy to create User interface in unity after working on it in Milestone 1.

# What is SQLite?

SQLite is a compact embedded relational database management system, it is cross-platform which means it can be used on various platforms. It is recommended to use SQLite when working on mobile based games as it does not have the capacity for more data storage and since SQLite is known to store data in a compact manner. (Sudonull, 2019) It is a convenient way of implementing a database in Unity. The database in my project was created in the streaming assets folder. We need to make sure in the plugins folder, there is an android folder as well as x86 folder. The Dataservice script is used as a bridge between unity and SQLite, the code to create tables for location, tofrom and players is written in the Dataservice script. SQLite script most part of it is generated automatically. The SQLite manager can be used to manage/edit the data in the local file.

# What is SQLite access with an ORM?

ORM (Object Relational Mapper) is a layer between the relational SQLite database and the object oriented application code. The ORM allows the developer to use the database without the need to transform objects into a format suited for the relational database. (greenrobot)

# Generics in C#

Generics help users define methods and classes using placeholders. Generic allows Type (integer, string etc aswell as user defined types) to be parameters to classes, interfaces and methods. Generics helps prevent duplication of code. (Geeksforgeeks, 2019) If generics is not followed it will lead to finding multiple bugs and having to fix each bug individually at multiple places leading to no productivity. In my project generics has been used in a couple of scripts which are Dataservice and SQLite. In SQLite generics is used in the form of dictionary to create and drop tables. In the Dataservice script generics is used in the form of list to save and load locations, there are other types of generics also used in these two scripts for example ienumerable etc. Generics help with type safety and performance of the code. IT helps create collection of classes. Too much type code will make the code difficult to understand. A generic class can be derived from other classes, interfaces or abstract classes. (Microsoft, 2015)

# Bibliography

Anurag. (2018, March 30). *newgenapps.* Retrieved from newgenapps: https://www.newgenapps.com/blog/unity-3d-pros-cons-analysis-choose-unity/#:~:text=It%20is%20very%20effective%20while,platform%20development%20and%20multiplatform%20games.

*Geeksforgeeks.* (2019, November 4). Retrieved from geeksforgeeks.org: https://www.geeksforgeeks.org/c-sharp-generics-introduction/

*greenrobot.* (n.d.). Retrieved from greenrobot.org: https://greenrobot.org/android/sqlite-access-with-an-orm-faq/#:~:text=An%20ORM%20is%20a%20layer,suited%20for%20the%20relational%20database.

*Microsoft.* (2015, July 20). Retrieved from microsoft: https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/generics/

*Sudonull.* (2019, March 7). Retrieved from sudonull.com: https://sudonull.com/post/31981-Using-SQLite-in-Unity-Unity-SQLite