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An Undergraduate Internship/Project on Lottery App

By

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Summer, 2022

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September 17, 2022

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

RTsolutionsIT company &

REAL TIME SOLUTIONS

To Whom It May Concern

This is to certify that Jahin Hossain Porob, son of MD Abul Basher and Sumiya Basher has successfully completed the professional internship program (Mobile App Development) at Real Time Solution from June 1st 2022 to August 23rd 2022. He has been given a glimpse of how the software industry in Bangladesh works. He was assigned with tasks related to his understanding and knowledge in the field of IT. He was assigned in the development of the app in one of our projects.

It may also be mentioned that during his training period, he was found devoted, attentive, as well as notably very convivial. Above the mentioned duration, he had never been reported to have association with any subversive activities of the state or of this organization.We wish every success in his future endeavor.



——————————

Abdullah-Al-Rakib (C.E.O)

Real Time Solutions

Acknowledgement

I would like to take this opportunity and express my special thanks to my faculties at Independent University Bangladesh. Starting with Md Abu Sayed sir for helping me throughout my internship period,Asif Bin Khaled sir for making Data Structures exciting, Bijoy Rahman Arif Sir for making Algorithms compelling with all his in-person jokes and examples, and introducing us to the space-time complexity of life, Subrata K. Dey Sir for making Object Oriented Programming straight forward, Dr. Tarem Ahmed Sir for making courses like Networking, educative, informative and exploring concepts outside the curriculum and to all the other faculties I met throughout these last 4 years for inspiring me and keeping me motivated throughout this undergraduate period. I would also like to thank my organizational supervisor Mr. Rakib Abdullah for giving me the golden opportunity to work on this wonderful project, which helped me learn a lot of software development related skills and helped me grow as a software developer. I would also like to forward gratuities to all the mentors, online or offline for inspiring me and mentoring me. I look forward to learning and growing more as a software developer

Letter of Transmittal

RTsolutionsIT company &

REAL TIME SOLUTIONS

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——————————

Abdullah-Al-Rakib (C.E.O)

Real Time Solutions

Evaluation Committee

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Signature

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Name

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Supervisor

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Signature

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Name

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Internal Examiner

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Signature

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Name

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External Examiner

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Signature

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Name

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Convener

Abstract

Lottery app is a Software provided ready to be developed by Real Time Solutions , which lets people buy lottery through app using online payment such as Bkash with one click.This app provides one stop solution for all lottery buyers who have bought tickets physically and waited days to find out winner can easily find and buy lottery only through a smartphone. The app will be available in two platform those being Android and IOS.

To make this app we will be using the framework flutter.Flutter is an open-source UI software development kit created by Google. It is used to develop cross platform applications for Android, iOS, Linux, macOS, Windows, Google Fuchsia, and the web from a single codebase.

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Chapter 1

Introduction

1.1 Overview/Background of the Work

Real time Solution provides a one stop solution for many projects based on management system, Apps both in Android and also in IOS. They also provide support of both website and apps. They are working on many projects including ridesharing, ecommerce apps , multi vendor ecommerce website and apps and so on.
Real Time solutions began its business operation as a Software Firm and also as a Technical Consultation company in January 2021
Real Time solutions focuses exclusively in high quality and cost-effective software development and implementation of services. The Company has currently been engaged with Government Projects, Educational Institutes, Small/Large Corporates and Businesses of all types.
Lottery app is one of the many projects i have been dealing with for the company.The backend of the app will be done using google firebase and also an web app version will be released along with the app.

1.2 Objectives

My work at Real tech solution is to work on their Lottery app project along with some others, and to port, develop, design, test and enhance a new Lottery app for android and IOS and with that being said, I was assigned as a Mobile App Developer at Real Time Solution and started working on the project from June 15th onwards, with the initial handover of the beta app on September 2022.
And as per company requirement I have to build one App and also debug some of their existing apps.I have already debugged one of their existing e-commerce app which is known as fresh.
The requirements for the app were to meet all the necessary functionalities a user might need.The needs to ke keep updated who won the lottery and which people are winning.They need to be ensured that real people are actually winning and their pro le should be shown.They should be able to pay for the ticket easily with bkash easily.
The payment gateways will be built with Bkash integration with strict protocols.

- Design UI/UX
- Debug Existing App
- Reskin old apps
- Implement and code the project from scratch using FLUTTER
- Implement Login using google rbase
- Ensure the app is fully function
- Test the app

1.3 Scopes

Client:

Real Time Solution

Project:

Lottery app

Organizational Supervisor:

Rakib Abdullah

Supervisor designation

CEO

Contact No.

01765612888

Email

realtime262@gmail.com

Problem Statement

For the time being this app is in the developent phase with limited functionalities, and not everyone in Bangladesh sells lottery online so this app will help them buy a lottery with a tap in their fingertips using their smartphone.I will be working towards that goal and will be responsible for handing over the app by the end of my internship at Real Time Solutions.

Project Description

An app where users will login and buy lottery tickets using bkash using the app.They will be able to view all the users profile who have won the lottery in the app.

Developer

Jahin Hossain Porob

UI/UX designer:

- Version 1 - Jahin Hossain Porob
- Version 2 - External Source-Redesign of Version 1
- Version 3 - Jahin Hossain Porob

Expected End Results:

By the end of this internship/project I should be able to wrap up this project, as required by my Internship Organization and will be debugging and reskining lots of different other apps for the organization

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

In the process of making the application, I used Flutter as my primary tools. I could have gone the native route with Java on the Android end and Swift on the IOS end, but a cross platform framework/ UI toolkit like Flutter felt like the best choice for this project. Since the app is being projected to be released on multiple platforms. And with that being said, Flutter is an open-source UI software development kit created by Google. It is used to develop cross platform applications for Android, iOS, Linux, macOS, Windows, Google Fuchsia, and the web from a single codebase and uses the Open source 2D graphics engine Skia to render the UI elements.
I also needed to utilize and manage both the backend of the application.I will be using google firebase for the authentication system of the app.
I had to design both the applications from the ground up in Adobe XD and Figma, using UI/UX design principles and keeping up with the modernt UI/UX trends. The app also needed to be responsive at all times using RESTful Api services, therefore I had to use my networking skills here, and optimized the app accordingly, so that the app can be efficient and effective at all times using as little bandwidth as possible.

2.2 Related works

List of University and Online courses that helped me reach this position.

University Courses that helped me throughout this internship period:

- Introduction to Object Oriented Programming.
- Database Management System

- Networking
- Advanced Computer Networks
- Data Structure
- Software Engineering
- System Analysis

Online Courses that helped me throughout this internship period:

- Google's UI/UX Masterclass" on Coursera.
- UI/UX Designing Masterclass" on Udemy
- Flutter Basics "on Udemy
- Master of Git GitHub" on Udemy

Chapter 3

Project Management & Financing

Project Description:

3.1 Work Breakdown Structure

Project Description: An app where users will login and buy lottery tickets using bkash using the app.They will be able to view all the users profiles who have won the lottery in the app.

Developer: Jahin Hossain Porob

UI/UX designer:

Version 1 - Jahin Hossain Porob
Version 2 - External Source - Redesign of Version 1
Version 3 - Jahin Hossain Porob

Timeline of the Project:
Starting date: 15th June 2022
App Handover date: 28th August 2022
Ending date: 26th August 2022

Phases:

- 1. Requirement Analysis
- 2.UI/UX design of the app
- 3. Development: Lottery App

- 4. Alpha Testing Lottery App
- 5. Release the app for beta testing

3.2 Process/Activity wise Time Distribution

Timeline of the Project:

- Starting date: 15th June 2022
- Ending date: 30th August 2022

3.3 Process/Activity wise Resource Allocation

3.4 Gantt Chart

3.5 Estimated Costing

Current projected costing (2022): 1.5 Lakh Taka. Currently Real Time Solutions is employing a total of 1 backend developer, 1 HR personnel, 1 front-end web developer and 4 cross-platform app developers. Due to the global pandemic, most of the developers working remotely played a massive role in the cost hike.

Projected project cost, as of 2022: 2.5 Lakh Taka.

Chapter 4

Methodology

Lottery app is just a vision for for the time being, and not everyone has access to a computer or even has the capability to login every day. As a result, a mobile port way was required.

Lottery these days on Bangladesh are sold mainly physically It was also observed that clients desired to make payments using such a service, requiring the inclusion of built-in payment gateways, leading to the creation of a standalone app dedicated solely for making payments for lottery ticket with one click of hand.

During the initial survey, it was found that users wanted to keep track of how many people have won lottery and if it's genuine or not.So an inclusion of winners tab with their profile will be included in the winners tab.

Finally, Flutter, a cross-platform framework/UI toolkit, is being used to create the app. We could've also used React Native. However, because Flutter is continually updated and supported by Google, it seemed like the best choice for our project. We also explored going native, with the Android port written in Java and the iOS port written in Swift. Maintaining two separate code bases, on the other hand, is a very difficult and time consuming task. As a result, Flutter was selected as the primary framework/toolkit

Chapter 5

Body of the Project

5.1 Work Description

Assigned role: Cross Platform Mobile App Developer – Flutter Developer

Joining date: 1st June 2022

Project completion date: 30th August.

App Deployment: The app is being deployed in iterations.

Day to day work: I was assigned as a Mobile App Developer at Real Time Solutions on 1st June 2022, and with that being said, my work at Real Time Solutions was to work on their Lottery app project.The app will let users buy ticket online using bkash.I designed, implemented, coded, tested and maintained everything from scratch.

5.2 System Analysis

Functional Requirements:

- Payment history
- View winners
- View Payment History bar

Non Functional Requirements:

- Theming
- Force updates

- Error handling
- Fast loading time
- Theming
- Responsiveness - Rescale UI for different display size

5.2.1 Six Element Analysis

- What has to be done: - Develop a cross platform android/ios app for lottery
- What has been done: - The app development process will start from scratch
- How actual performance compares with the baseline: - The app will be very user friendly and very easy to understand for Bangladeshi people
- What remains to be done: -Do the backend of the app
- Identify and implement corrective actions to bring performance in line with expectations
- Test results: 40

5.2.2 Feasibility Analysis

Feasibility Report Prepared by: Jahin Hossain Porob

Email: porob93@gmail.com

Date: 25th July

Executive Summary:

The report discusses the project's projected development costs and opening costs. However, the actual development cost accrued 1.5 Lakh Taka, which is more than the projected cost for the project. Though it was suggested that we may implement other effective budgeting strategies and identify other factors that could have limited the projected costs.
Scope
The report involves the app's estimated budget costs for development and for the app to launch. Also, it discusses the app's estimated development costs to date as of July 25th
Conclusion
The object of this report is to identify the estimated costs for the development of the project. While the estimated costing for the project was 1.5 lakh Taka, the real cost was around 2 lakh

5.2.3 Problem Solution Analysis

Making a mobile app for the lottery has a lot of benefits as people are just a click away from buying a lottery online.The app is targeted to the audience of Bangladeshi people and also mainly designed to make it easy for Bangladeshi people to buy it using an online payment gateway.

5.2.4 E ect and Constraints Analysis

Some of the side effects of using external packages/sdks in the project were, there were a lot of unnecessary files which increased the overall app size.
There was a time when it was decided that the app would have an active location tracking facility and push notifications using Google's Firebase services, but since the project was decided to be deployed in dedicated servers, we were limited to using only the facilities provided by those servers.

5.3 System Design

5.3.1 UML Diagrams

-Use Case diagram

5.3.2 UML Diagrams

Figure 5.1: fig: Activity diagram for making payment using Lottery App.

5.3.3 UI Designs

Figure 5.2: Signup Page.

Figure 5.3: Login Page

Figure 5.4: Splash Screen

5.3.4 Architecture

The app was developed using Agile methodologies with the core features being rolled out and tested in an iterative model. And as for the core architecture the app was built using Flutter and Provider, therefore the app structures were modeled as an model-view-controller, MVC project structure.

5.3.5 Implementation

The app was developed in iterations and in an iterative model, meaning some parts of the app were developed earlier in the lifecycle then the other parts. But the app is being deployed as a whole.

Chapter 6

Results & Analysis

During the initial survey phase which was a part of the requirement gathering process it was seen that most of the users and the stakeholders wanted a payment gateway within the application itself which lead to the project manager to implement Bkash as payment gateway.

Most of the users wanted to check all the winners who have won the lottery and check history so they will be able to access and check who have won and lost and verify that the app was legit or not.So as a result the winner checking method was also introduced to the app.

And finally as a result of this internship at Real Time Solutions, –Lottery app is scheduled to release in september.As some backend parts needs to be handled by another developer.The app UI has been revised 3 times over the course of the internship and also added a lot of features during the process.

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

The project is a private project for an individual. With updates rolling out every month. Therefore there is no question in the sustainability of the project. The project is self-sustainable as long as the service is kept up to date with latest features.

7.2 Social and Environmental E ects and Analysis

Since I joined the team during a global pandemic, therefore I had to work remotely, meaning I was working from home, using my personal computer and work-provided laptop. Though we had to do daily stand-up meetings with the team and project manager on Google Meet/ Zoom.

7.3 Addressing Ethics and Ethical Issues

Since I was assigned to work with mostly front side developers. Therefore the work environment was quite mixed and quite interesting, and I had to face some di culties getting along with some backend developer. But other than that the work environment and work ethics was up to standards and I did not face any di culties, and I have no complaints.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

- Problem 1: Since i didnt design any app before, I had to design the whole UI/UX of the app using adobe XD.
- Problem 2: I made 2-3 UI/UX design layout as they were not approving of the design
- Problem 3: Adding custom nav bar was very difficult
- Problem 4: Simultaneously along with the app i was handled responsibility to update some of their already built apps
- Problem 5 Dart was the language used in flutter which was little hard to adapt to as it has not been taught in University

8.2 Solution of those Problems

- Solution to Problem 1: I had to spend a lot of time learning adobe XD and also see some courses using youtube.
- Solution to Problem 2: I had do take details of everything and had to watch so many other apps before finalizing on a design.
- Solution to Problem 3: I had to talk and take help from a few developers from dev.to to completely design the navbar i wanted.
- Solution to Problem 4: I had to work daily on the lottery app and also the other app which i had to update.I had to make a schedule when to do what
- Solution to Problem 5:I had to learn the syntax of dart in order to make this app

Chapter 9

Future Work & Conclusion

9.1 Future Works

The future of this project depends on Real Time Solutions. During my internship period the app is almost ready to deploy.It has some backend work left otherwise everything is completely done. Some updates for the App are in development, which includes UI redesign version 3 which is being developed and redesigned by me, and another new feature is still in the R D process, conducted by Spate themself and will begin development at a later date.
I was asked to stay and also learn at the company as a front end developer as a UI/UX designer but i decided to get to learn more about backend before committing to it.Alongside this i have been working on some Europe based company for their app which is known as Flash Scores.I had to find time between my flutter developer job and also as a social media manager for this app.I also have to look after a 3 million liked social account which i have grown myself

9.2 Conclusion

In conclusion, my time at the company as a Flutter Developer Intern was quite productive with new challenges and obstacles every week, and every time I faced a new challenge or obstacle, I had to learn and master new skills to find a workaround or a solution. And working with a team of front-end and back-end developers and getting to know their work around was really interesting and mind opening. I have learned a lot of stuff during this internship period and I look forward to learning and growing more as a developer.

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An Undergraduate Internship/Project on Lottery app By RealTime Solution

By

Jahin Hossain Porob

Student ID: **1821390**

Summer, 2022

Consent Form

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during final viva, and the department can use this version for archiving.

Asayed

(Signature of the Supervisor)

Md Abu Sayed, Lecturer

Department of Computer Science &
Engineering Independent University,
Bangladesh