



American International University-Bangladesh (AIUB)

Department of Computer Science

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Section: D

Software Quality Assurance and Testing

Parental Security Application

A Report submitted

By

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Software Test Plan

for

Parental Security Application

Version 1.0 approved

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24/11/2022

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Revision History

Revision	Date	Updated by	Update Comments
0.1	6/12/2022	Niloy Kundu Adhar	First Draft
0.2	7/12/2022	MD Shoyaib Akther	Second Draft
0.3	8/12/2022	Abusufiun Abir	Third Draft
0.4	9/12/2022	Khanam Fahmida	Fourth Draft
0.5	10/12/2022	MD Toriqul Islam	Fifth Draft

1. TEST PLAN IDENTIFIER:RS-MTP01.3

2. REFERENCES

1. Selenium: www.selenium.com
2. Excel: www.excel.com

3. INTRODUCTION

Background to the Problem

Caring for aging parents should be a top concern for every kid, no matter how busy they are. We should work harder to create a culture that actually cares and is willing to assist the less fortunate and vulnerable, especially our senior citizens. Today's youth must learn to value their parents and develop a culture of taking care of them when they get older. Some people, however, have a tendency to disregard their responsibilities in favor of their family and work. Children have a duty to look after their elders, no matter how busy they are.

Solution to the Problem

In order to deal with this issue and make caring for our parents easier we present the tool 'Parental Security' with features to help maintain the daily needs, security and health of our elders.

4. REQUIREMENT SPECIFICATION

4.1 System Features:

1. Registration

Functional Requirements

1.1 The software have registration option .The registration procedure is for child user in this system. Child will sign in to the software by doing registration. It will take personal information such as name, email address, Country.

1.2 A verification code will be send to email id for verify.

1.3 If the verification is not successful, the verification code will be provided again.

Priority level: High.

Precondition: A valid email address.

2. Create Profile

Functional Requirements

1.1 After sign in child user will create two profile .One is child user profile & another is parent user profile.

1.2 In both profile, name, mobile number, valid nid number, age, location is needed.

1.3 After creating the profile, both profile will be connected.

Priority level: High.

Precondition: Registration & sign in.

3. Schedule

Functional Requirements

3.1 After creating the profile child will schedule parent's routine.

3.2 In schedule section there will be many options of routine like, parents mealtime, medicine, exercise time, any kinds of advises, & other important information.

Priority level: High

Precondition: Create profile.

4. Notification

Functional Requirements

4.1 Following the schedule, a notification alarm will be ringed to parents device by the software.it will be reminder for them to do their needed activities.

4.2 If they don't response then automatically a notification will be shown to child profile .Then they will aware of it.

Priority level: High

Precondition: Schedule

5. Update schedule & Information

Functional Requirements

5.1 User will be able to update or change schedule anytime.

5.2 User also can update other information like mail id, phone number & etc.

Priority level: High

Precondition: Registration & schedule.

6.1 Settings & Background Options

Functional Requirements

6.1 In the software there will be settings option for change language & also theme mode option (Dark mode & Light mode).

Priority level: Low

Precondition: Registration & schedule.

1.1 System Quality Attributes

Non-Functional attributes

Usability:

The system shall be usable by only the senior citizens. The system must be easy to user.

Priority level: High.

Flexibility:

Flexibility is used as an attribute of various types of system .users can easily access and adapt the software so frequently to utilize their needs. The software is organized according to user demand and user easily understand the change.

Priority level: High.

Integrity:

Whenever a change is made to software or any activity from user will recorded in a secure storage and update the activity system through secure Connection.

Priority level: High.

Efficiency:

If the system is using all the available resources then the user will get degraded performance failing the system for efficiency. If the system is not efficient then it can't be used in real-time applications. As the software will be mostly used by the senior citizen, it is organized in small size so that it will be more efficient.

Priority level: High.

Performance:

Performance of software depends on software optimization. System management sector shall provide better quality database server, transaction and usage storage. They will keep the system out of unnecessary load.

Priority level: High.

Reusability:

System development should be in good sequence so that reuse of the software will be a good cost-efficient. Software implementation should be in different code library classes to use easily in different application modules. Dividing the application into different modules so that modules can be reused across the application.

Priority level: High.

Portability:

The System should be so simple transform one medium to another.

Priority level: Medium

Testability:

The system should be easy to test and find error. The system will be organized in a sequence to divide into different modules for testing.

Priority level: High.

Maintainability:

The system will be well documented and it will be designed to be easier maintenance. The system shall not be shut down for maintenance more than once in 24 hours. Maintenance should be cost-effective and easy.

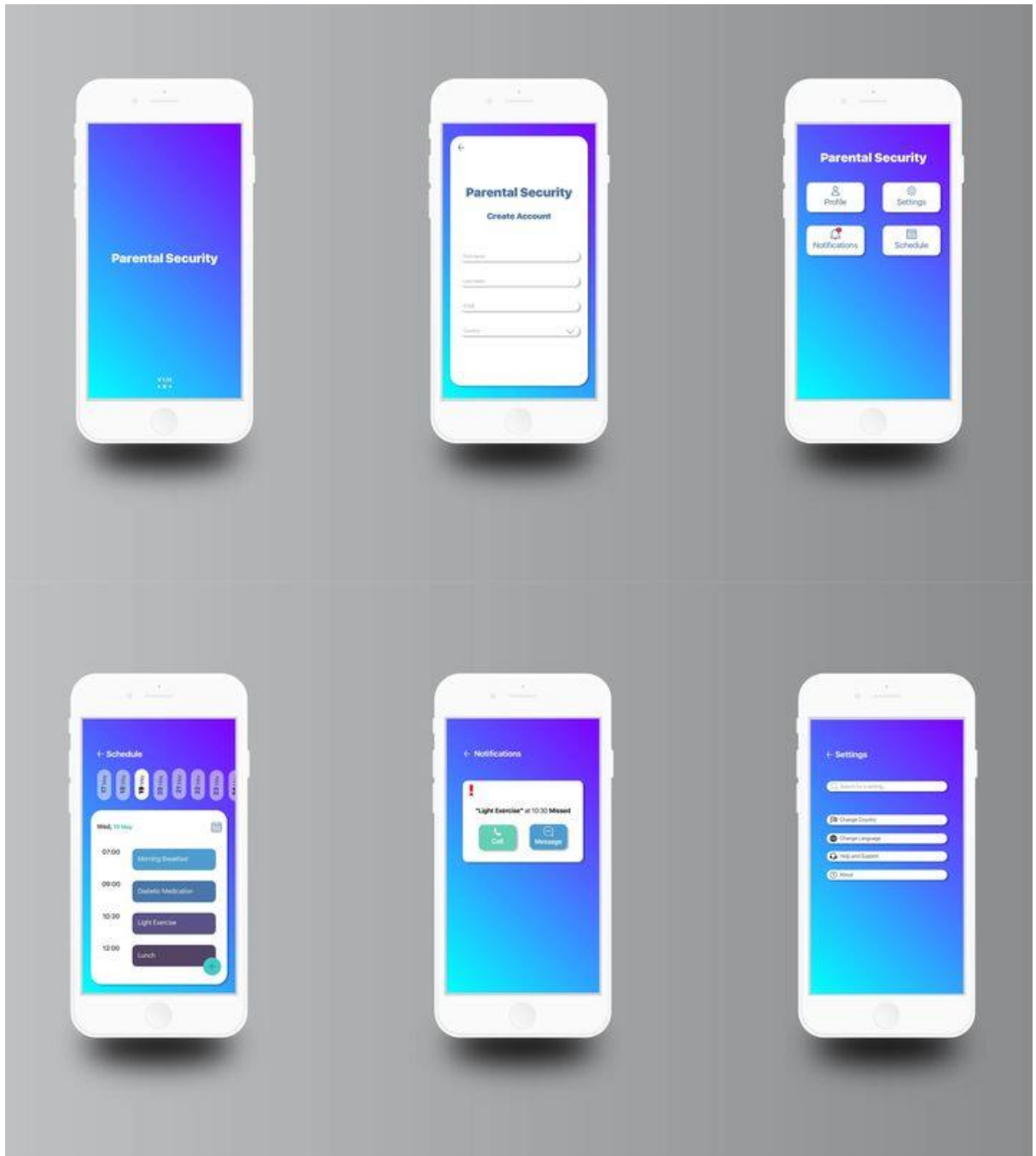
Priority level: High.

Interface:

All aspects of the system will have a simple point and click interface using text field, buttons, all other components of the system with graphical user interface. This interface will be designed to be consistent. The interface will be designed to help accommodate user with disabilities such as color blindness. The system will also have clear and understandable message for every steps and activity.

Priority level: High

4.2 System Interface



4.3 Project Requirements

Total Development Time: 6 months.

- Total Working Hours needed: 1440 Hours
- $10 * 8 * 18 = 1440$ hours or 18 months for development
- $8 * 30 = 240$ hours for Testing & Debugging
- 2 months for revision
- Total Budget: 1,450,000 BDT
- Resources: 4 app developers, 4 software testers, 4 Custom Built PCs, 5 Android mobile smartphones.

Environment: LAN Connection. Language: Python. Database: MongoDB.

5. FEATURES NOT TO BE TESTED

We have a total of ten features in our project. Out of these ten features, two will not be tested. Those two features are:

- 1. Profile Edit:** All the vital information will be cross-checked at the time of registration. So, this is not an essential feature. There will be some functions in profile edit like upload & change the user's profile picture and change the app's theme. Without these things, one can easily use the app.
- 2. Multi-language:** By default, the language will be English. We have conducted a survey, most of the participants preferred English as their preferred language for the app. In this way, foreigners can also use the app. Nevertheless, many people preferred Bangla as the app language, so we will work on that. However, this is not a high-prioritise features. We will not test this feature as of now.

6. TESTING APPROACH

6.1 Testing Levels

The 'Parental Security Application' testing will consist of Unit, System, Integration, and Acceptance test levels. However, with the budget constraints and timeline established, most testing will be done by the test manager with the development teams' participation.

- **Unit Testing:** Unit testing means individual testing, and it is also white box testing. When a developer completes a module, the developer compiles that module to

ensure the module is working. In our system, this testing will occur when a developer completes the design of any page.

Control Flow Testing: It aims to find defects caused by the faulty construction of program code. It is white box testing. In our system, the developer will select a particular part of an extensive program to set the testing path and Test cases represented by the control graph of the program. Control Flow Graph (CFG) is formed from the nodes & edges.

Data Flow Testing: In this testing, data has been traced, and the main goal is to find out the anomalies of the program. In our system, the developer will search for anomalies (Defined and then defined again, Undefined but referenced, defined but not referenced). If the developer finds any anomalies, they will detect them and try to solve them.

Domain Testing: The primary goal of domain testing is to check whether the software application accepts inputs within the acceptable range and delivers the required output. In our system, the developer will identify domains from the source code. First of all, a developer will draw a control flow graph from the given source code. Then find all possible interpretations of the predicates. Furthermore, at last, analyst the interpreted predicates to identify domains.

- **Integration Testing:** Integration testing aims to check the correctness of communication among all the modules. It is performed by the test manager and development team leader with assistance from the individual developers as required. When developers develop two or more modules in our system, the testing team will join these modules and check the incompatibility.

- **System Testing:** This testing occurs when the integration testing has been done. Here it tests the overall system operations as a whole, typically from a customer's perspective. It is black-box testing. In our system, the tester team will combine the whole system (software and hardware). Then compile the entire system, and if they got any problem, they would fix it as soon as possible.

- **Acceptance Testing:** It is formal testing. This testing phase verifies the entire illness of the customer's requirement. The Customer/end-user will test the whole system and will give feedback.

6.2 Test Tools

The tools have different approaches to testing and thus have different sets of features. We will use Python and MongoDB to develop our application.

1.1.1 Unit Testing

Unit testing is a type of testing in which individual units or functions of software testing. Its primary purpose is to test each unit or function. A unit is the smallest testable part of an application. It mainly has one or a few inputs and produces a single output.

- For Python, we must need SELENIUM as a software testing tool.

1.1.2 Integration Testing

Integration testing is a type of testing meant to check the combinations of different units and their interactions; subsystems unite into one standard system and code compliance with the requirements.

For integration testing, we must use selenium as our testing tools. This tools are for web.

6.2.1 1.1.3 System Testing

System testing verifies that an application performs tasks as designed. This step, a kind of black-box testing, focuses on the functionality of an application. System testing, for example, might check that every type of user input produces the intended output across the application.

To perform System testing, we will use:

- **Selenium:** Selenium is Codeless Automation Testing Tool that provides automated testing solutions to test our website. Selenium Automates executes and manages test cases effortlessly & efficiently.

6.3 Meetings

This entire project duration is 24 weeks, and the testing phase will take 46 days. During this time, we have about 7 weeks.

- All modules will be tested in the first 4 weeks by unit testing, integration testing, & system testing. The whole testing phase will occur in this period by the QA Engineers. If they have any defect, they will solve it and again test the entire module.
- It will take two weeks for a customer or third-party test. In this phase, acceptance testing will occur. They will test the system and give us a review report.
- When the review report comes from the vendor and if there is any defect, the review report will be looked up and analyzed to solve the fault. It will take one week to solve the problems and go for final testing.
- A general meeting will occur every Friday at 10:00 PM.

7. TEST CASES/TEST ITEMS

Project Name: Parental Security		Test Designed by: Niloy		
Test Case ID: AN0001		Test Designed date: 10/11/22		
Test Priority: High		Test Executed by: Niloy		
Module Name: Registration		Test Execution date: 10/11/22		
Test Title: Registration Verification				
Description: Security code and verify the email id.				
Precondition (If any): 1. If the email id is valid.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Verify Id by code	Email id :maabir2000@gmail.com Name: Abir16	Give confirmation	As expected	pass
Post Condition: The system will allow for further step.				

Project Name: Parental Security		Test Designed by: Niloy		
Test Case ID: AR002		Test Designed date: 10/11/22		
Test Priority: High		Test Executed by: Niloy		
Module Name: Login Session		Test Execution date: 10/11/22		
Test Title: verify login with valid E-mail and password				
Description: Test Login Site				
Precondition (If any): 1. User must have valid username and password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Go to the site 2.Enter E-mail 3.Enter password 4.Click submit	Email id : maabir2000@gmail.com Name: Abir16 Password: Abir777	User should login into the system	As expected	pass

Project Name : Parental Security		Test Designed by: Abir		
Test Case ID: AR0200		Test Designed date: 15/11/22		
Test Priority: High		Test Executed by: Niloy		
Module Name: Schedule		Test Execution date: 15/11/22		
Test Title: Check the selected schedule				
Description: Verify the users routine.				
Precondition (If any): Schedule must be organized.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. See all schedule 2. Select preferable routine	Schedule : Morning medicine	Should see the schedule	As expected	pass
Post Condition: The system will allow for further step.				

Project Name: Parental Security		Test Designed by: Niloy		
Test Case ID: AR0201		Test Designed date: 20/11/22		
Test Priority: High		Test Executed by: Niloy		
Module Name: Notification Alarm		Test Execution date: 20/11/22		
Test Title: Verification of Timely Notification				
Description: Check that does the notification follow the routine .				
Precondition (If any): Routine time must be organised.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Verify Child profile notification 2.Verify Parent Profile notification	Schedule Data: 23289240923	Notification alarm must give alerts.	As expected	Pass
Post Condition: Show the notification				

Project Name: Parental Security		Test Designed by: Abir		
Test Case ID: AR00202		Test Designed date: 20/11/22		
Test Priority: High		Test Executed by: Abir		
Module Name: Logout		Test Execution date: 20/11/22		
Test Title: Verify logout option				
Description: Check whether logout option is working or not.				
Precondition (If any): User must login to the system				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.GO to the site 2.Login to the system 3.Click logout	N/A	Logout from the system	As expected	Pass
Post Condition: User goes to the home page				

8. ITEM PASS/FAIL CRITERIA

No major defect is found. 100% system integration tests passed. All the moderate defects found in SIT (System Integration Testing) phase have been fixed and re-tested. Each open Incident - and closed Incident, if agreed it is appropriate - is traced back to the Business Scenarios. An assessment is made about the technical impact and whether they can deliver the functionality the organization needs. In Full Acceptance, the system will be accepted as is. Any outstanding Incidents will be worked around. Limited System Acceptance, the outstanding Incidents cause too many problems. The system is accepted subject to a timetable of fixes, staff training about workarounds, and similar measures. For System Rejection, This is where the system does not support the Business Scenarios of the organization.

9. TEST DELIVERABLES

Test deliverables are list of documents, tools that must be created, provided and maintained to support testing teams in their activities during the project. The list for our test deliverables is given below:

- Test plan
- Test data
- Test results
- Defect reports and summaries

10. STAFFING AND TRAINING NEEDS

- The developers and testers will need to be trained on the basic operations of the mobile application.
- The sales administration staff will require training on the new screens and reports.
- At least one developer and operations staff member must be trained on the mobile-based distributor installation and control.

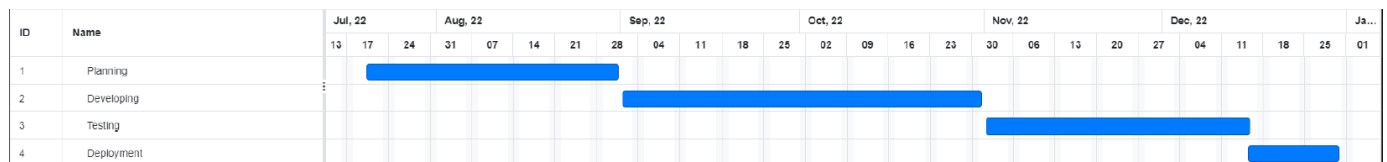
11. RESPONSIBILITIES

	Towfiquil	Fahmida	Niloy	Showyaib	Abir
Project Proposal	✓	✓			
Requirement analysis		✓	✓	✓	

Planning	✓	✓	✓		✓
System Design	✓			✓	✓
Implementation			✓		✓
Test case design	✓	✓	✓	✓	✓
Test case implementation	✓	✓	✓	✓	✓
Integration Testing			✓		✓
Report Bugs & make summary		✓		✓	
Documentation	✓			✓	

12. TESTING SCHEDULE

The following testing activities have been scheduled in the project plan. We have used the cloud based platform “Excel” to create a Gantt chart for our project schedule. The project plan timetable specifies the particular dates and hours for each task. In collaboration with the development and test team leaders, the project manager will coordinate the employees required for each task, test team, development team, management, and customer.



13. PLANNING RISKS AND CONTINGENCIES

Risk	Probability	Impact	Mitigation

Error in Functions	Medium	Medium	Test the application frequently and maintain a daily backup.
Wrong SQL Command for Important Data	Medium	High	Maintain security checks & backups.
Loss of encrypted data	Medium	High	Maintain security check and backup.
User's account hacking attempt	High	High	Restrict user after three unsuccessful login attempts in an hour.

13. APPROVALS

Position	Assigned
Project Sponsor	Fahmida Khanam
Development Management	MD Shoyaib Akther
EDI Project Manager	Islam, MD Towfiqul

RS Test Manager	Niloy Kundu Adhar
RS Development Team Manager	Abusufiun Abir