



The Team

Test Plan (IEEE 829 Format)

Version: Testplan-NTUTheTeam-Master-1.1.0

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Table of Contents

Introduction	3
Test Items (Functions)	3
Software Risk Issues	4
Features to be Tested	5
Features not to be Tested	6
Approach (Strategy)	6
Item Pass/Fail Criteria	7
Suspension Criteria and Resumption Requirements	8
Test Deliverables	8
Environmental Needs	8
Staffing and Training Needs	8
Responsibilities	9
Schedule	9
Planning Risks and Contingencies	10
Approvals	11
Glossary	11
References	11

Introduction

In the following is a test plan designed to prescribe the scope, approach, resources and schedule of all testing activities of the E-Tendance Project by The Team.

Specifically to highlight some of the topics covered. It is the potential risks and how they will be handled, scheduling of the testing into the project plan, the required resources in terms of both environmental and staffing needs and finally the general approach of the testing.

Test Items (Functions)

The following functions are to be tested:

1. Login Page
2. Display of Live Feed on Main Page
3. Facial Recognition Function
4. Function of Adding Students' Names to the Appropriate List
5. Unrecognised Popup Window
6. Summary Page
7. Editing Attendance in Summary Page
8. Password Control for Administrator Privilege

Software Risk Issues

Some of the risks identified are:

1. Team members lack the skills and resources required to develop and maintain the facial recognition system and its database.
 - Some time must be allocated to train the team members adequately in their area of work
2. Team members lack cooperation between them, thus impacting the overall productivity of their work.
 - Some time must be allocated for the team members to mingle around and get to know each other well so that they will be more understanding towards each other.
3. Team members find it extremely hard to cope up with the tight work schedule given to them.
 - The Project Management schedule should be modified accordingly along the way so that the estimated time to complete the work will be more accurate.
4. The budget of the project exceeds.
 - A cheaper alternative to the technology used for the facial recognition service can be considered.

Features to be Tested

The table below shows the features to be tested, their level of risk and reasoning for choosing these features.

Feature	Level of Risk	Reasoning
Login Page	High	The login page is the starting point for the whole application. It is crucial that it works so that tutors can access the attendance taking main page.
Display of Live Feed on Main Page	High	It is essential that the live feed is being displayed and mostly available so that students' faces can be recognised.
Facial Recognition Function	High	It is critical that students' faces are accurately recognised.
Function of Adding Students' Names to the Appropriate List	High	It is important that students' names are added to the appropriate lists: 'Present', 'Absent' and 'Late'.
Unrecognised Popup Window	Medium	In the event that students are not recognised, they can register themselves and update their photos for recognition using the unrecognised popup page.
Summary Page	High	The summary page is essential for the tutor to view the final attendance list at the end of the class.
Editing Attendance in Summary Page	Medium	Allows tutor to edit students attendance should there be any discrepancies.
Password Control for Administrator Privilege	High	Important that only tutors who know the password can edit students' attendance in the summary page.

Features not to be Tested

The features below will not be tested:

- User Friendliness of the Front-End Graphical User Interface (GUI)
- Hardware Products
- Database System

Approach (Strategy)

The main approach used for testing of the E-tendance Web application would be unit testing. Unit testing and Integration Testing.

Unit Testing is a level of software testing where individual units and components are tested independently. A unit is the smallest individual component of the software that can be tested. The purpose of conducting unit testing is to check that individual components are implemented and performs as intended.

Integration Testing on the other hand is a level of software testing where individual units are combined and tested as a group. The purpose of integration testing is to expose faults in the interaction and integration of combined units. It is crucial to conduct integration testing for the E-tendance system as there are dependencies between units in the application and it is essential that the web application works as an integrated whole.

Item Pass/Fail Criteria

Feature	Pass Criteria	Fail Criteria
Login Page	Appropriate course index is accepted without throwing any errors.	Appropriate course index is not accepted.
Display of Live Feed on Main Page	Live feed is shown on the main page.	Live feed is not shown on the main page.
Facial Recognition Function	Students are correctly recognised and identified.	Students are not correctly identified.
Function of Adding Students' Names to the Appropriate List	Students' names appear correctly under the given list: 'Present', 'Absent' and 'Late'.	Students' names does not appear correctly under the given lists.
Unrecognised Popup Window	Previously unrecognised student will be marked as 'Present'.	Error occurs when the student was trying to enter his matriculation number or when taking his pictures to update the database.
Summary Page	All the students are correctly identified as 'Present' or 'Late'.	Some students are wrongly identified as 'Present' or 'Late'.
Editing Attendance in Summary Page / Password Control for Administrator Privilege	Professor is allowed to change the attendance status of a student after providing the correct password.	Professor is not allowed to change the attendance status of a student despite providing the correct password.

Suspension Criteria and Resumption Requirements

If the team members found out that approximately one-third (33%) of the above-mentioned test items did not pass their respective Passing Criteria, further testing should be stopped immediately.

The development team will then need to analyse all the failed test cases and rectify the errors before further testing can commence.

Test Deliverables

As a part of this plan the following documents will be delivered:

- Test Plan Document
- Test Cases
- Test Design Specifications
- Tools and their Outputs
- Error Logs and Execution Logs
- Problem Reports and Corrective Actions
- Simulators

Environmental Needs

Resource	Description
Webcamera	Min 5 MP
Internet Connection	At least 4 Mbps
Computer	Running Google Chrome browser
Testing Subjects	People for which their face is registered in the class index
Classroom	With proper lighting and placement of webcamers pointing in direction of entry within 1-2 meters

Staffing and Training Needs

The QA Manager will determine from the responsibilities in the next section whether all staff in each role has the required training to perform the tasks specified. If a staff member does not have the required training, a plan will be made for the member to obtain that training.

Responsibilities

Staff	Tasks
QA Manager	<ul style="list-style-type: none"> - Management of the project - Decide the scope and direction - Allocate needed resources - Assist QA Engineer to perform tests - Build and maintain testing tools
QA Engineer	<ul style="list-style-type: none"> - Approve test approach - Test execution, result logging, defect reporting - Decide and describe the chosen test tools/techniques/automation architecture - Implement the chosen test cases, test program, test suite.
All QA members	<ul style="list-style-type: none"> - Check conformance with specified requirements - Build and ensure test environment and assets are managed and maintained

Schedule

The Gantt Chart below details the schedule of the testing process for the E-tendance web application.

The duration allocated for each testing process includes time for debugging and fixing any issues that might arise.

Tasks	Duration	Start date	Finish date	14/10/2019							21/10/2019						
				M	T	W	R	F	S	S	M	T	W	T	F	S	S
<i>E-tendance Testing</i>	14 days	14/10/2019	27/10/2019														
<i>Unit Testing</i>	10 days	14/10/2019	23/10/2019														
<i>Integration Testing</i>	4 days	24/10/2019	27/10/2019														

Planning Risks and Contingencies

Overall risks with an emphasis on the testing process :

1. Team members lack the skills and resources required to test the facial recognition system and its database.
 - Budget must be increased to teach the team members proper techniques of software testing, as well as to purchase effective software testing tools to aid the process.
2. Team members deliver the software late due to an increased time in the development of the features.
 - Add some buffer time for the development of the features in the work schedule planned at the start of the software development stage so that the delays will be accounted for as much as possible.
3. The original requirements or the design of the software project changes due to changing customer demands.
 - The test cases should be revised to reflect the changes in the software project.

Approvals

Version	Author	Date	Approved by	Approval Date
1.0	Simon, Akshaya, Shaan	28 October 2019	Simon El Nahas Christensen	31st October 2019
1.1	Simon, Akshaya, Shaan	2nd November 2019	Simon El Nahas Christensen	3rd November 2019

Glossary

- User: The people, group or organisation which the product is delivered to.
- Unit-Testing: Testing of individual and independent units/components of E-tendance web application.
- Integration Testing: Testing of combined units to test integrated system.
- Units : Smallest functional component in system.
- Live-feed: Display of webcam video.
- Suspension Criteria: End criteria before testing has to be stopped and debugged before continuing.
- Gantt-Chart: Chart that displays the work scale and dependencies between tasks. Also shows duration and timeline of tasks.

References

1. Project Plan
2. CMMI Level 2 Definition
3. Test Cases and Coverage Report