

SYSTEM TEST PLAN

Ecodena – an Online Judge System

SEN Team #3

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This document presents an abstract overview of the approach to be followed during the testing phase of Ecodena, an Online Judge System in order to assure the quality of the system. It analyses the domain of testing, the types of testing and the corresponding strategies and exit criteria, various requirements during the phase, the risks involved, the deliverables to be obtained and the testing schedule approximation

Table of Contents

1. Introduction.....	3
Learn	3
Practice.....	3
2. Test Strategy	4
System Test.....	4
Smoke Test.....	4
Performance Test.....	4
Security Test	5
Stress and Volume Test.....	5
Recovery Test	5
Beta Test	5
User Acceptance Test.....	5
3. Environment Requirements	6
Server	6
Mainframe:.....	6
4. Test Schedule	6
5. Control Procedures.....	7
Reviews	7
Bug Review meetings.....	7
Change Request	7
6. Functions to Be Tested.....	7
7. Exit Criteria	8
8. Tools.....	8
9. Documentation	8
10. Resources and Responsibilities	9
a) Resources:.....	9
b) Responsibilities:.....	9
11. Deliverables.....	10
12. Risks	12
12.1. Schedule	12
12.2. Technical	12
12.3. Management.....	12
12.4. Personnel.....	12
12.5 Requirements	12
Index.....	13

1. Introduction

Ecodena aims to provide an environment for people, specifically students to learn, practice and improve their programming skills, especially first time learners.

Learn

It will provide extensive error report for the solution submitted hence helping the user to learn. It will also feature a tutorial section where many different flavours of problems with their solution will be provided to the user. It will provide users with different badges to reward their expertise.

Practice

Platform will provide extensive set of problems in competition section. Users will be rewarded with points according to the difficulty of the problem. It will also rank every user to fuel competition. Platform can also be used as an independent contest holding platform by different individuals or institutions.

2. Test Strategy

The test strategy consists of a series of different tests that will fully exercise the Ecodena project. The primary purpose of these tests is to uncover the systems limitations and measure its full capabilities. A list of the various planned tests and a brief explanation follows below:

System Test

The System tests will focus on the behavior and performance of the project. Overall, the system tests will test the integrated system and verify that it meets the requirements defined in the software requirements document.

Smoke Test

This test will verify that the vital functionalities of the system is working according to that mentioned in the software requirement specifications document. If there is malfunctioning in the mainframe of the project then, the further testing should be halted and the mainframe should be modified and tested again.

Performance Test

The performance test will focus mainly on the user requirements and the response times of the various modules integrated in the system, and to have a check that performance does-not exceed the specified criteria. The performance test will be evaluated under high volume and heavy stress.

Security Test

This test will focus on how secure our system is based on the user credibility. This part will also include the resistance against the intrusion of malicious scripts and to verify that the codes submitted don't harm the system.

Stress and Volume Test

We will subject the Ecodena project to high input conditions and a high volume of data during the peak times. The System will be stress tested using twice (100 users) the number of expected users.

Recovery Test

Recovery tests will force the system to fail in a various ways and verify the recovery is properly performed. It is vitally important that all the data is recovered after a system failure & no corruption of the data occurred.

Beta Test

This test will verify whether the developed system is working according to the user requirements mentioned in the software requirement specifications report. This will also check all the bugs that cannot be found in software development phase.

User Acceptance Test

Once the system is ready for implementation, the programmers will perform User Acceptance Testing. The purpose of these tests is to confirm that the system is developed according to the specified user requirements and is ready for operational use.

3. Environment Requirements

Server

- 4 GB RAM
- 50 compatible PC's
- High Speed Internet Connection
- 50 user-ids and 50 corresponding passwords

Mainframe:

- Browsers: Firefox version 3.6 or greater
- Chrome version 10.0 or greater

4. Test Schedule

I.	Integration and System Testing Phase 1	17/03/12	-	26/03/12
II.	Integration and System Testing Phase 2	27/03/12	-	03/04/12
III.	Beta Test I	07/03/12	-	16/03/12
IV.	Beta Test II	17/03/12	-	26/03/12
V.	User Acceptance Test	04/04/12	-	08/04/12

5. Control Procedures

Reviews

The project team will perform reviews for each Phase. (i.e. Requirements Review, Design Review, Code Review, Test Plan Review, Test Case Review and Final Test Summary Review). A meeting notice, with related documents, will be emailed to each member of the group.

Bug Review meetings

Regular weekly meeting will be held to discuss reported defects. The developers will provide status/updates on all defects reported and the testers will provide additional defect information if needed. All members of the project team will participate in the process.

Change Request

If any of the issues raised by the users in the site issues section is found genuine by the admin then he will conduct a meeting after which the decision will be taken whether to resolve it or not.

6. Functions to Be Tested

The following is a list of functions that will be tested:

- add new account / make changes to the existing account
- upload solution to problems
- comment for a problem
- Error report generation
- Ranking

7. Exit Criteria

If any defects are found which seriously impact the test progress, the team members may suspend testing. Criteria that will justify test suspension are:

- Hardware/software is not available at the times indicated in the project schedule.
- Source code contains one or more critical defects, which seriously prevents or limits testing progress.
- Assigned test resources are not available when needed by the test team.

8. Tools

We will not be using any tool for the testing purpose and all the testing will be done manually. All the test reports will also be generated manually.

9. Documentation

The following documentation will be available at the end of the test phase:

- Test Plan
- Test Cases
- Test Case review
- Requirements Validation Matrix
- Defect reports
- Final Test Summary Report
- System test report.

10. Resources and Responsibilities

Since our testing phase is divided into several phases as a part of concurrent development method so almost everyone in the group will be working in the testing phase.

a) Resources:

The team will consist of-

- A test lead
- 3 Testers
- 10 programmers
- Programming Club

b) Responsibilities:

- A test lead- He will manage all the testing activities in that phase and take care that the system is error free after that phase. He will communicate the testing status to the project team.
- Testers- They will be responsible for performing the actual system testing.
- Programmers- Will assist in performing beta testing and user acceptance testing.
- Programming Club: He/she will help coordinate the Beta and User Acceptance testing efforts.

11. Deliverables

Deliverable	Responsibility	Completion Date
Develop Test cases	Testers	16/03/2012
Test Case Review	Test Lead, Testers	16/03/2012
Requirements Validation Matrix	Test Lead	16/03/2012
Obtain User ids and Passwords for database	Test Lead	16/03/2012
Execute manual tests	Testers & Test Lead	03/04/2012
Complete Defect Reports	Everyone testing the product	03/04/2012

Ecodena System Test Plan (SEN Team #3)

Document and communicate test status/coverage	Test Lead	03/04/2012
Execute Beta tests	Programmers	03/04/2012
Document and communicate Beta test status/coverage	Programming Club	03/04/2012
Execute User Acceptance tests	Programming Club	08/04/2012
Document and communicate Acceptance test status/coverage	Programming Club	08/04/2012
Final Test Summary Report	Test Lead and testers	09/04/2012

12. Risks

12.1. Schedule

The schedule for each phase is very aggressive and could affect testing. A slip in the schedule in one of the other phases could result in a subsequent slip in the test phase. Close project management is crucial to meeting the forecasted completion date.

12.2. Technical

Since this is a very technical challenging project, in the event of a failure the old system can be used. We will run our test in parallel with the production system so that there is no downtime of the current system.

12.3. Management

Management support is required so when the project falls behind, the test schedule does not get squeezed to make up for the delay. Management can reduce the risk of delays by supporting the test team throughout the testing phase and assigning people to this project with the required skills set.

12.4. Personnel

Due to the aggressive schedule, and the inexperience of the testers the whole project may suffer. Unexpected turnovers can impact the schedule. If attrition does happen, all efforts must be made to replace the experienced individual.

12.5 Requirements

The test plan and test schedule are based on the current Requirements Document. Any changes to the requirements could affect the test schedule.

Index

Beta Test, 2, 5, 6	Requirements, 2, 7, 8, 10, 12
Bug Review meetings, 2, 7	Resources, 2, 9
Change Request, 2, 7	Resources and Responsibilities, 2, 9
Control Procedures, 2, 7	Responsibilities, 2, 9
Deliverables, 2, 10	Reviews, 2, 7
Documentation, 2, 8	Risks, 2, 12
Environment Requirements, 2, 6	Schedule, 2, 12
Exit Criteria, 2, 8	Security Test, 2, 5
Functions to Be Tested, 2, 7	Server, 2, 6
Introduction, 2, 3	Smoke Test, 2, 4
Learn, 2, 3	Stress and Volume Test, 2, 5
Mainframe, 2, 6	System Test, 2, 4
Management, 2, 12	Technical, 2, 12
Performance Test, 2, 4	Test Schedule, 2, 6
Personnel, 2, 12	Test Strategy, 2, 4
Practice, 2, 3	Tools, 2, 8
Recovery Test, 2, 5	User Acceptance Test, 2, 5, 6