

# **Software Requirements Specification**

**for**

# **Learn&Joy**

**Version 1.0**

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**20.05.2022**

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## Revision History

Name	Date	Reason For Changes	Version
SRS	20.05.2022	First Version created	1.0
			1.1.
			1.2

# **1. Introduction**

## **1.1 Purpose**

This document has been prepared to determine the requirements of the "Learn and Love" software project which is an online test application include quiz and true/false questions that users can use to measure their knowledge level. Users can see the correct answers and scores after solving tests.

## **1.2 Scope**

We may need to test ourselves in many areas that we have learned in our lives. We may want to test the knowledge we have learned at school or on online platforms with ease and fun. Learn&Joy software makes this job easy and fun for us. Every person over the age of 18 can measure the level of knowledge on any subject they want, free of charge. Learn and Joy software will be developed in such a way that users can take a test on the topic they choose after creating an account in the application and see the results.

## **1.3 Definitions, Acronyms, and Abbreviations**

UML: Unified Modelling Language

IEEE: The Institute of Electrical and Electronics Engineers

## **1.4 References**

1. "IEEE Guide for Software Requirements Specifications," in *IEEE Std 830-1984*, vol., no., pp.1-26, 10 Feb. 1984, doi: 10.1109/IEEESTD.1984.119205.

## **1.5 Overview**

This SRS contains all requirements and constraints of Learn&Joy project.

- Section 2 describes the general factors that affect the product and its requirements.
- Section 3 contains all the details the software developer needs to create the software.
- Section 4 defines technologies, infrastructure, performance, scalability, quality attributes, and other non-functional requirements.

# **2. General Description**

## **2.1 Product Perspective**

Learn&Joy is online test application. Also, it will be accessible from any platforms such as IOS/Android phones, computers, and tablets. User registration is necessary, and it is a free application.

## **2.2 Product Functions**

This product will have the following functions:

1. The page where the user can register or log in is displayed. User registers or logs in
2. The user selects the desired topic from the page with the test categories and clicks the button and all tests in this category are displayed.
3. The user selects the test they want to solve, and the test page is displayed. If there is a training video or slide before the test, it will be here.
4. According to the answer type, the user marks the answers to the questions. The answers are saved by the system. During the test period, the user can pause the test and resume solving the test if he wants to continue.
5. At the end of each solved test, the user's score is displayed. The score list for each solved test is displayed. Users will be able to write comments about the test.
6. If the user wants to see the answers to the questions, he clicks on this option and the answers to the questions are displayed.

## **2.3 Users and Characteristics**

Learn&Joy will be used by students over the age of 18 who can speak Turkish or English. Users may be studying in all areas. There is no need for technical knowledge and advanced computer skills.

## **2.4 General Constraints**

- a. This product is a new and self-contained product that will be developed as a web and mobile application.
- b. The application will be designed and coded using unity.
- c. The default languages of the product are English and Turkish, but optionally, the language infrastructure can be expanded, and new languages can be added in the future.
- d. It is expected that an average of 5000 users per day will use the application.
- e. Visual and text formats can be included in the questions and answers in the application. There are also instructional video and slide options before the tests.
- f. The application will be available 24 hours a day.
- g. Users' information will be stored by the system unless the user account is deleted.

## **2.5 Assumptions and Dependencies**

Security measures such as CAPTCHA can be added to the application to ensure account access security. There may be other 3rd party apps that want to advertise to the app. More information and scenarios about this integration will be provided by the developer of the application.

## 3. The Specific Requirements

### 3.1 External Interface Requirements

#### 3.1.1 User Interfaces

##### 3.1.1.1 Defining an Exam Operation Page

Defining an exam page is for admin to create a new test.

Required fields for this page: Category and name of the test to be added.

The number of questions to be put and their content (image or text) and the type of question (Multiple/Single selection or True/False).

The number of answers to the questions and the content of the answers (image or text)

Image 1: Defining an Exam Operation Page Mockup

**Learn&Joy**    File   Edit   Options   Tools   Settings   Help    Admin: EkinAlaydin ekinaly    Search

**Create A New Category**  
Please enter the new exam category

**Create A New Test**  
Please enter the new exam name

**Add pre-test training video/slide**  
Upload the video/slide

PLEASE CHOOSE THE TYPE:

Video   

OK

**Define the New Question**

QUESTIONS

PLEASE ENTER THE NUMBER OF QUESTION:

PLEASE CHOOSE THE QUESTION TYPE

☐ Multiple/Single Selection

☐ True/False Selection

QUESTIONS WITH IMAGE    QUESTIONS WITH TEXT

Upload Image    ENTER THE TEXT

OK

**Define the New Answer**

ANSWERS

PLEASE ENTER THE NUMBER OF ANSWERS:

ANSWERS WITH IMAGE    ANSWERS WITH TEXT

Upload Image    ENTER THE TEXT

OK

**Save The Exam**

### 3.1.1.2 Taking a Test Operation Page

Taking a test operation page is for the users to solve the test.

Required fields for this page:

Player for watching pre-test training video or presentation.

Table with categories for selecting test categories.

Question and answer sections (The content of questions and answers can be in the form of visual or text).

The area where the received score is displayed.

All options about testing.

Image 2: Taking a Test Operation Page Mockup

**LEARN&JOY**

USER: Ekin Alaydin ekinaly

Enter the test name

Please Choose The Test Category

- Category 1
- Category 2
- Category 3
- Category 4
- Category 5
- Category 6
- Category 7
- Category 8
- Category 9
- Category 10
- Category 11
- Category 12
- Category 13
- Category 14
- Category 15

**WATCH TRAINING VIDEO/SLIDE**

**QUESTION 1:**

.....[TEXT].....

OR

(IMAGE)

**ANSWER 1:** (Multiple/Single Selection) OR **ANSWER 1:** (True/False Selection)

☐ Option 1 ☐ Option 1

☐ Option 2 ☒ Option 2

☒ Option 3

☐ Option 4

**PAUSE THE TEST**

**RESUME THE TEST**

**SKIP THE QUESTION**

☒ **WRITE COMMENT**

**YOUR SCORE :**

### 3.1.2 Communications Interfaces

This product has account-based authorization or authentication process.

At the registration stage, the user is required to share their contact information. Safe storage of this information is an important priority. Secure transmission, storage and access should be considered in design time as a part of software architecture.

### **3.2 Functional Requirements**

In this section, the functional requirements for the “Learn&Joy” project will be defined with the system features and the main services provided by the product. The use case diagram (Image 3), which indicates the user and their operations, and the data model (Image 4), which includes the high-level data information required for the project, are shown below.

Image 3: Learn&Joy Use Case Diagram

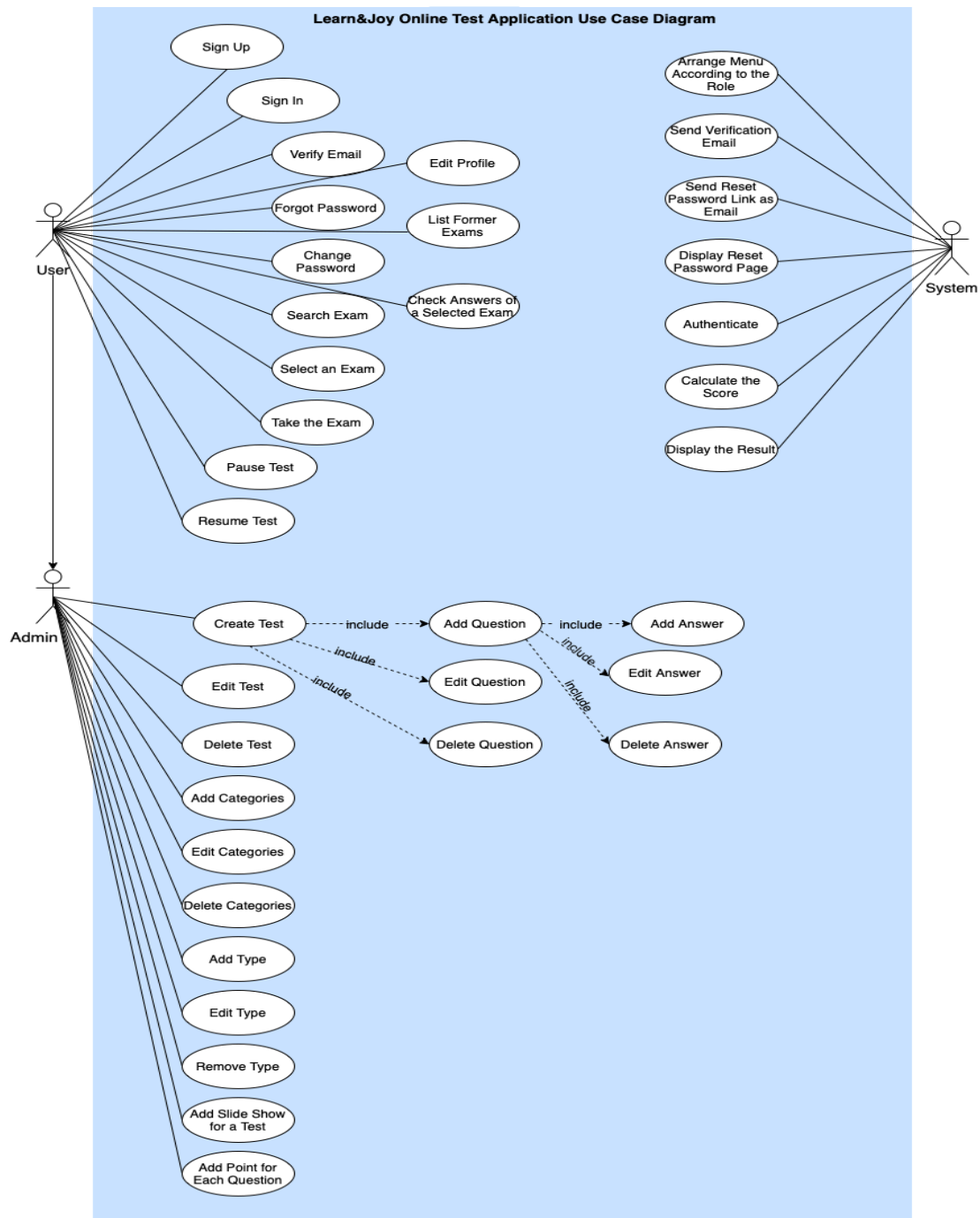
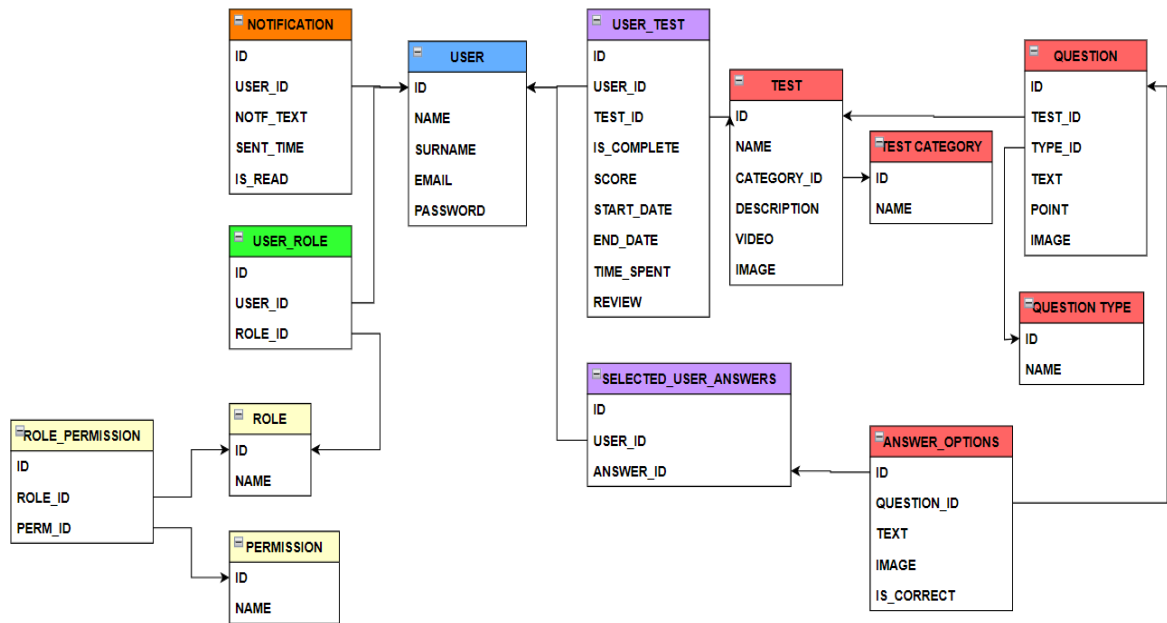


Image 4: Learn&amp;Joy Data Model



## LEARN &amp; JOY DATA MODEL



### 3.2.1 Defining an Exam Operation

#### 3.2.1.1 Description and Priority

This feature allows the creation of a new exam, the content of which is prepared by the admin, which users will solve. It is a high priority and essential feature.

#### 3.2.1.2 Stimulus/Response Sequences

Sequences of user actions and system responses is listed below:

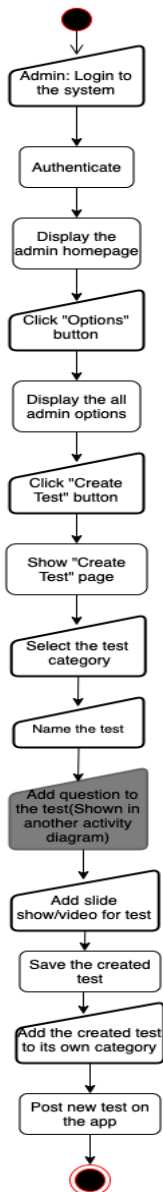
1. Admin: Click on the define new exam button
2. System: Display the exam creation page
3. Admin: Click on "Create new exam category" button
4. System: Enter the name of the new exam category
5. System: Save the exam category
6. Admin: Click on "Create new exam name" button
7. System: Enter new exam name
8. System: Save the name of the new exam
9. Admin: Click on add question button
10. System: Enter the number of questions to be included in the exam
11. System: Save number of questions
12. System: Choose what the question type will be (Multiple selection/Single selection or True/False). Display the warning that "Up to 10 options can be ticked for Multiple selection"
13. System: Show the required space to write questions or upload visual questions
14. Admin: Write or upload questions
15. System: Ask for the point of each question
16. System: Save all point

17. System: Save all questions
18. Admin: Click the add answer button
19. System: Enter the number of answers to be included in the exam
20. System: Choose what the answer type will be(Text/image)
21. System: Show the required space to write answers or upload visual answers
22. Admin: Write or upload answers
23. System: Save all answers
24. Admin: Click on the exam tutorial video/slide upload button
25. System: Show required space to upload video/slide
26. Admin: Upload video/slide
27. System: Save video/slide
28. Admin: Click on “Save The Exam” button
29. System: Save and post new exam

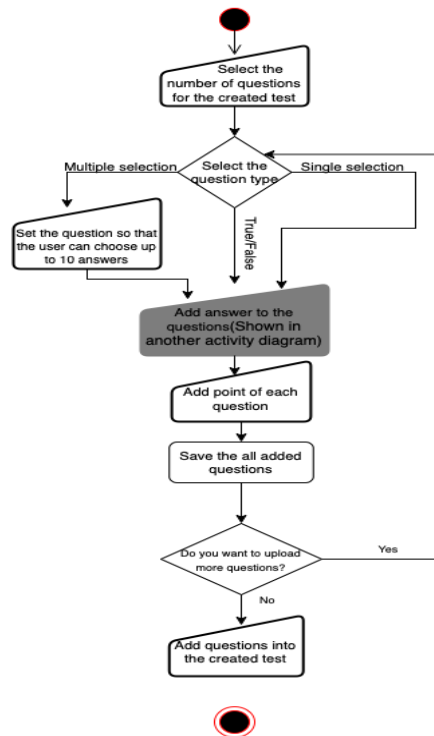
Workflow of the “Defining an Exam Operation” can be tracked through the activity diagram given in Image 5.

Image 5: Defining an Exam Operation Activity Diagram

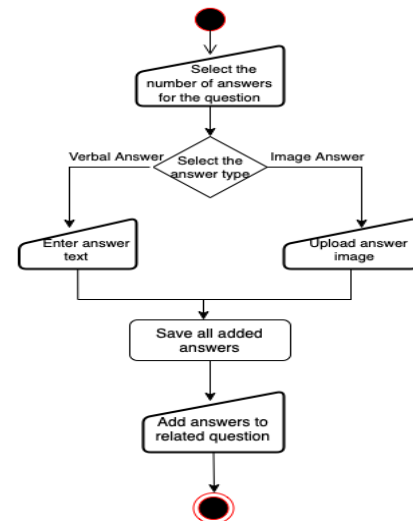
Create Test Activity Diagram



Add Question Activity Diagram



Add Answer Activity Diagram



### 3.2.1.3 Functional Requirements for Defining an Exam Operation

3.2.1.3.1.1.1.1.1 Functional requirements associated with the “Defining an Exam Operation” feature is listed below:

- REQ-1: Admin will be able to define new category and enter name
- REQ-2: Admin will be able to define and enter new test name
- REQ-3: Admin will be able to select files and enter text for questions
- REQ-4: Admin will be able to enter the number of questions required for the exam
- REQ-5: System should be able to provide the required space for the questions or text and store the entered data.

REQ-6: System should be able to save the number of questions, questions and images

REQ-7: Admin can add answers to questions, these answers can be multiple/ single selection and true false selection

REQ-8: System should save the entered answers and check the status of selecting a maximum of 10 options for multiple selection.

REQ-9: Admin will add points for every question

REQ-10: System will save the points of all questions

REQ-11: Admin will be able to add video or slideshow for each new test

REQ-12: System should provide video upload space and provide necessary storage space for each new test.

REQ-13: System should save and publish the new exam created

## 3.2.2 Taking a Test Operation

### 3.2.2.1 Description and Priority

This feature allows the user to select and solve the desired test. It is a high priority and essential feature.

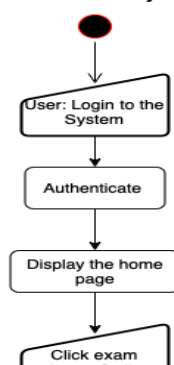
### 3.2.2.2 Stimulus/Response Sequences

Sequences of user actions and system responses is listed below:

1. System: Show test categories
2. User: Click the test category you want to solve
3. System: Show all tests in the selected category
4. User: Search and select the exam you want to solve
5. System: Show the exam questions
6. User: Select the answers to the questions
7. System: Give the user options to skip the question/pause the test/continue the test
8. System: Get user's option. If he/she wants to skip the question, show the new question. If he/she wants to stop the test, stop the test. If he/she wants to continue the test, continue where he left off.
9. System: Save all answers
10. User: Finish the exam
11. System: Calculate the score based on the point of each question and the correct incorrect rate
12. System: View score
13. User: Click on check answers button
14. System: View exam answers
15. User: Click the exit button
16. System: Quit the exam

Image 6: Taking a Test Operation Activity Diagram

Take the Exam Activity Diagram



Workflow of the “Taking a Test Operation” can be tracked through the activity diagram given in Image 6.

### **3.2.2.2 Functional Requirements for Taking a Test Operation**

Functional requirements associated with the “Taking a Test Operation” feature is listed below:

REQ-1: System will show the user all the categories created by the admin. User will choose test category

REQ-2: System will display all tests created by admin in this category. User will type the desired test in the search box. System will find the wanted test and display that test to the user

REQ-3: User will be able to tick the boxes in the answers section. System will save all the answers given by the user and store it.

REQ-4: System will show the user “Skip Question”/”Stop Test”/”Continue Test” buttons. User can click on one of these options

System should display the next question/stop the test and save/continue the test from where it left off and save the answers according to the user's response.

REQ-5: System should calculate the user's score  
the system should display the score of the user's completed test

REQ-6: User will click on the “Check the answers to the questions” button and answers to the questions will be displayed

REQ-7: User will click the “Quit” button and the system will close the page

## **4. Other Nonfunctional Requirements**

### **4.1 Performance Requirements**

- The system should be able to administer 5000 users per day.

To make the product usable in all conditions, all performance measures must be adjusted for the maximum frequency of test solutions and the maximum number of user logins.

### **4.2 Security Requirements**

Any personal data in the server should be encrypted and cannot be shared. Captcha can be added to the application to protect spam accounts and passwords.

### **4.3 Software Quality Attributes**

Product should have following quality attributes:

- Easy to use,
- Easy to remember,
- Ability to achieve the purpose with the least effort and time,
- An enjoyable user experience,
- Satisfying design in the first use,
- Allowing the users to take back their mistakes,
- Preventing mistakes