

# **IT314 - Software Engineering**



## **Lab 3**

### **Specifying Functional and NonFunctional Requirements**

**Group number: 20**

**A platform for creating and managing online  
crosswords.**

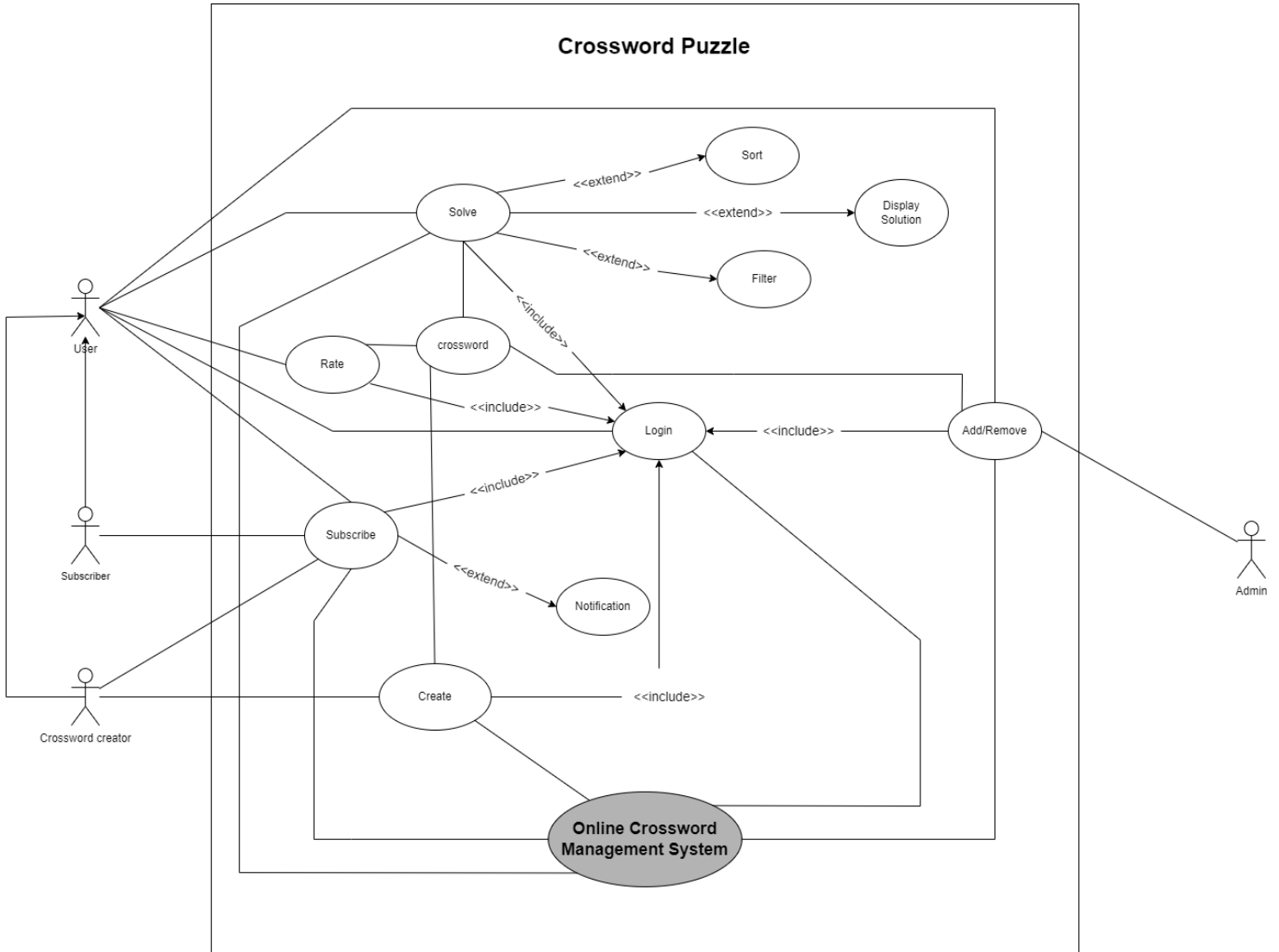
**Actors:**

- Users
- Crossword Creators
- Subscribers
- Admin

**Use Cases:**

- Create Crossword
- Solve Crossword
- Login
- Subscribe
- Rate a Crossword
- Add or remove crossword or member
- Send Notifications
- View solution
- Sorting and Filtering Crossword list
- Access hints

# Use Case Diagram



# Use Case Descriptions

## 1. Create crossword

**Actor:** crossword creator

**Goal:** The primary goal of this use case is allow crossword creator to create a custom crossword puzzle that can be shared or published on the crossword creating website

**Precondition:**

- The user must have an account with a crossword creating website.
- Users must be logged in.
- Users must have a basic understanding of how to create a crossword puzzle, including rules for creating clues and answers.

**Description:** In a crossword creating website, the "create crossword" feature allows users to create their own custom crossword puzzles. Once the user has finished creating their crossword puzzle, they can save it and choose whether to keep it private, share it with specific users, or publish it publicly on the website.

**Main flow:**

1. The user logs into their account on the crossword creating website.
2. The user clicks on the "Create New Crossword" button to start the puzzle creation process.
3. The user can choose two options after clicking on the "Create New Crossword" button, first "Create Manually" or "Auto Generate".
4. If a user clicks on "Auto generate" the website automatically creates a crossword for the user. (jump to 6)
5. User chooses a manual option to create a crossword.
  - 5.1 The website presents a blank crossword grid with a list of numbered Squares.

- 5.2 The user fills in the numbered squares with letters to create the puzzle grid.
- 5.3 The user enters the clues and answers for each square on the crossword puzzle grid.
- 5.4 The website may provide features such as spell-check, word-count, or other useful tools.
- 6. The user can preview their crossword puzzle to ensure it looks correct and is functioning properly.
- 7. The user can then save their crossword puzzle and choose whether to keep it private, share it with specific users, or publish it publicly on the website.
- 8. Once the puzzle is published, other users can search for and solve the crossword puzzle.

**Alternate flow:**

7.a If the user attempts to publish a crossword puzzle that violates the website's terms and conditions, the website may reject it or take action against the user account.

**Postcondition:**

- The user has successfully created a custom crossword puzzle on the website.
- The puzzle can be accessed, solved, and shared by other users on the website.
- The user can edit or delete the crossword puzzle at any time through their account settings.

## **2. Solve Crossword**

**Actors:** User, Subscribers, Creators

**Goal:** To be able to access and attempt the crossword puzzle

**Preconditions:**

→ The user must have an account and must be logged in to the system.

**Description:**

The main aim is to allow the user to solve puzzles and save their history. Through this the admin as well as the user can view the solved, unsolved puzzles under various categories.

**Main flow:**

1. The user on logging in will be directed to a home page.
2. User selects the filter or sort option.
3. The user selects a topic of their choice and selects a crossword puzzle under that which it wants to attempt.
4. User reads and questions and writes answers in the grid provided.
5. User clicks submit and checks if he solved correctly. The user will be provided an evaluation report after solving i.e. the time taken, number of hints accessed and the score.

**Alternate flow:**

- 4.a. The user can access hints when needed.

**Postconditions:**

→ That particular puzzle will be shown attempted on the user's page.

### 3. Login

**Actors:** User, Admin

**Goal:** Allows the user to login to the system.

**Precondition:**

→ User must have an account.

**Description:**

This feature allows users to login to the system and perform further tasks.

**Main Flow:**

1. Type the username in the space provided.
2. Type the password in the space provided.
3. Click on the login button.

**Alternative flow:**

- 2.a. If user forgets password
  - 2.a.1. Redirect user to forget password page
- 3.a. If user does not have account
  - 3.a.1. Redirect user to register page.
- 3.b.1. If username and password don't match
  - 3.b.1. Display message
  - 3.b.2. Redirect user to login page

**Post Condition:**

→ User account will be created and he will be able to access all the features.

## **4. Subscribe**

**Actor:** User, subscriber, crossword creator

**Goal:** To subscribe or unsubscribe crossword creator

**Precondition:**

→ The user has a valid account and has already logged in to the website.

**Description:**

The user wants to follow their favorite creator and get notified when a new crossword will be added.

**Main flow:**

1. The user searches for the creator they wish to subscribe to on the platform.
2. User navigates to the creator's profile page.
3. The user clicks the "Subscribe" button to follow the creator.

**Alternate flow:**

- 1.a If the user does not have a valid account
  - 1.a.1 The platform prompts them to create one or log in before proceeding with the subscribe process.
- 3.a. If a user has already subscribed and wishes to unsubscribe
  - 3.a.1 One has to click the Unsubscribe button.

**Postcondition:**

→ Subscribe button changes to unsubscribe. Notification will be sent to the user.



## 5. Rate a Crossword

**Actors:** User

**Goal:** Users can rate a particular crossword to share his/her experience and help others to make a decision whether they want to play that crossword puzzle or not based on rating.

**Preconditions:**

- Users must be logged into the system.
- User should have solved that crossword puzzle before he/she rated it.

**Description:**

This functionality allows the users to rate a crossword based on their experience and. This will allow other users to decide if they wish to solve that puzzle or not.

**Main Flow :**

1. User logs in to his/her account with the correct credentials.
2. User clicks on the “rate” button to give his/her rating.
3. The website shows a rating scale between 1 to 5 for that crossword puzzle.
4. Users can select any number between 1 to 5 that he/she wants to give as a rating for that crossword puzzle.
5. User entered the share button to provide the rating to the website.
6. The website stores the new given rating.

**Alternative Flows:**

- 2.a If the User does not want to give a rating
  - 2.a.1 Skip the rating and redirect user to the home page

**Post conditions:**

→ Rating for that particular crossword puzzle must be updated on the website.

**6. Add or remove crossword or member**

**Actor:** Crossword creator, Administrator

**Goal:** To add or remove crossword puzzles or members from the system who violate guidelines.

**Preconditions:**

→ The Crossword creator or Administrator must be logged in to the system.  
→ The administrator must have appropriate privileges to add or remove the crossword puzzle or member.

**Description:**

The administrator wants to add or remove crosswords or members.

**Main flow:**

1. Admin logs into his system.
2. The crossword creator selects the add crossword puzzle button on the website interface.
3. The admin selects whether to add or remove a crossword or member.
4. The admin selects the "Remove crosswords/Members" button on the admin interface.
5. The system displays the current list of crosswords and members.
6. If removing a member or crossword, the admin must select the items to be removed and confirm the removal.
7. The administrator exits the add/remove feature and continues using the admin interface.

**Alternate Flow:**

- 1.a. If the admin is not logged into his system
  - 1.a.1. The system will ask him for logging in.

**Post Condition:**

→ The system updates the list of crosswords or members accordingly.

## **7. Send Notifications**

**Actor:** Subscriber

**Goal:** Send notifications to subscribers about updates of new crosswords by their subscribed crossword creators

**Precondition:**

→ To get notification users must be subscribed to the respective crossword creator.

**Description:**

System will give notification regarding new crosswords uploaded by the subscribed crossword creator and they will also get notification for daily crossword puzzles.

**Main flow:**

1. Users must have to login into their account.
2. Users must be subscribed to crossword creators for their new crossword notification.
3. Notification gets from the system to the user notification section.
4. To see the notification user have to click the see notification button which is available into the platform.

**Alternate flow:**

- 1.a. If the user is not logged into his account, the system will ask him to log into his account .
- 3.a If the user is not subscribed to crossword creators he will not get notifications.

## **8. Viewing solution of crossword puzzle**

**Actor:** User

**Goal:** To view the complete solution of a crossword puzzle

**Preconditions:**

- The user must have an active account in the system.
- The user must have an existing puzzle open.
- The puzzle must have been attempted at least once.

**Description:** The system shows the solution of the crossword puzzle.

**Main flow:**

1. The user selects the “View Solution” button on the crossword puzzle interface.
2. The system verifies that the user has an active account and that the puzzle is open.
3. The system displays the complete solution of the puzzle.
4. The user examines the solution and learns how to solve the puzzle.
5. The user closes the solution and continues using the puzzle interface.

**Alternate flow:**

- 1.a If solution does not exist
- 1.a.1 Display no solution available message

**Postcondition:**

- The user has viewed the complete solution of the puzzle.
- The system records that the user has viewed the solution of the puzzle.

## **9. Sorting and filtering Crossword List**

**Actors:** User

**Goal:** To be able to sort or filter out the crossword puzzles on different parameters.

**Preconditions:**

→ The user must have an account in the and must be logged in to the crossword puzzle software.

**Description:**

The user will be allowed to pick crosswords of their choice through sorting and filtering. Hence, it will not require searching one to search for different categories separately and then make a selection.

**Main Flow:**

1. The user on logging in will be directed to a home page.
2. It then has to look for the “topics” option and click on it.
3. On the page it is redirected to one must click on filter and sort option.
4. The user must then make a selection from the available options according to their preference.
5. All the crosswords falling under the categories will be displayed.
6. The user can then make a selection from the results and proceed to solving.

**Alternate Flow:**

- 5.a If no puzzles appear under the preferences made by the user
  - 5.a.1 User will have to add a set of new preferences and try out another combination.

## 10. Access hints

**Actor:** User

**Goal:** User should be able to find hint for the given word

**Precondition:**

- The user should already open a crossword and currently solve a crossword.
- The hint section will show how many hints are left for the user to use.

**Description:** The user will use this use case for asking help for a particular word if the user can't solve or answer the word in the crossword and be able to see the hint until the user solves the problem.

**Main flow:**

1. The user select a cell of the given word
2. The Users press the hint button.
3. A hint pops up in the hint section.

**Alternate flow:**

- 2.a The User presses the hint button without selecting a cell. The hint will not generate.
- 2.b The user does not have hints left for asking for hints. It will not show hints and show that no hints are left.
- 3.a The user has already solved the crossword. It will show that the crossword has already been solved.

**Post condition:**

- The hint will be saved for the user and it will show every time the user selects any cell of the word.
- The number of hints will decrease by one after the use of a hint.

## Non functional requirements

1. **Performance:** The website should be able to handle a large number of users simultaneously and respond quickly to user actions, such as creating, editing, or solving crossword puzzles.

**Justification:** This is important to ensure a smooth and seamless user experience, and to prevent frustration or abandonment of the website.

2. **Security:** The website should have robust security measures in place to protect user data, prevent unauthorized access, and prevent hacking or other malicious activities.

**Justification:** This is important to protect user privacy and prevent data breaches or other security incidents.

3. **Usability:** The website should be easy to navigate and use, with intuitive interfaces, clear instructions, and helpful feedback.

**Justification:** This is important to ensure that users can create and solve crossword puzzles without confusion or frustration, and to encourage continued use of the website.

4. **Reliability:** The website should be available and functional at all times, with minimal downtime or interruptions.

**Justification:** This is important to ensure that users can access and use the website whenever they need to, and to prevent frustration or abandonment of the website due to technical difficulties.

5. **Compatibility:** The website should be compatible with a wide range of devices and browsers, to ensure that users can access and use the website regardless of their platform or preferences.

**Justification:** This is important to maximize the potential user base and ensure that the website is accessible to as many people as possible.

**6. Scalability:** The website should be designed to handle increasing levels of traffic and user activity, as the user base grows and the website becomes more popular.

**Justification:** This is important to ensure that the website can continue to function effectively and efficiently, even as the demand for its services increases over time.

**7. Puzzle of the day:** The website should provide a new puzzle every day to the users.

**Justification:** This is important to ensure that the website can attract more users.