Software Engineering Fundamentals
Assignment 4 (Individual)

ISYS3413/ISYS1117/ISYS1118

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Activity #1.1

Function #1 – Check the functionality of the addPost function

Test Cases	Test Data	Expected Result	Test Result	Pass/Fail
Verify the function with a **valid post**	**ID:** 1, **Title:** "What is the best way to code a string into a linked list in java", **Body:** "I am writing a program to add String type data to a circular doubly linked list and to view them in java. I want to know that how to add Strings to the linked list and how to get the output.", **Tags:** ["tag1", "tag2"], **Type:** "Easy", **Emergency:** "Ordinary"	Post successfully added	Post successfully added	Pass
	ID: 2, **Title:** "How to create a user in linux using python", **Body:** "How do I create a user in Linux using Python? I mean, I know about the subprocess module and thought about calling 'adduser' and passing all the parameters at once, but the 'adduser' command asks some questions like password, full name, phone and stuff. How would I answer this questions using subprocess?", **Tags:** ["tag1", "tag2", "tag3"], **Type:** "Difficult", **Emergency:** "Highly Needed"	Post successfully added	Post successfully added	Pass
Verify the function with an **invalid title**	**ID:** 3, **Title:** "A 22 letter String", **Body:** "The result after decoding is then 16 bytes (every 3 bytes becomes 4 characters, so we get 20 from the first 15 bytes and 2 characters more to encode the last byte; you'll note that the final character has fewer options than the other ones, because it really encodes 2 trailing bits (so we'd expect 4 different ones, including A for 00 etc.). Read up on base64 encoding if you want the nitty gritty.", **Tags:** ["tag1", "tag2"], **Type:** "Easy", **Emergency:** "Ordinary"	Post not added, Try again	Post not added, Try again	Pass
	ID: 4, **Title:** "10 Python Tips", **Body:** "Consistency is very important when you are learning a new language. We recommend making a commitment to code every day. It may be hard to believe, but muscle memory plays a large part in programming. Committing to coding everyday will really help develop that muscle memory. Though it may seem daunting at first, consider starting small with 25 minutes everyday and working your way up from there.", **Tags:** ["tag1", "tag2"], **Type:** "Easy", **Emergency:** "Ordinary"	Post not added, Try again	Post not added, Try again	Pass
Verify the function with a **valid** body	**ID:** 5, **Title:** "Software Engineering Fundamentals for Beginners", **Body:** "Online learning platforms provide a flexible and affordable way to build software engineering skills without needing to enrol in a formal degree program. With the wealth of free and paid online courses, certifications, books, and other resources now available, self-driven learners can craft personalized curriculums tailored to their goals.", **Tags:** ["tag1", "tag2"], **Type:** "Easy", **Emergency:** "Ordinary"	Post successfully added	Post successfully added	Pass
	ID: 6, **Title:** "Decrypting an asymmetric public key", **Body:** "This topic provides information about creating and using a key for asymmetric encryption using an RSA key. Asymmetric encryption uses the public key portion of the asymmetric key and decryption uses the private key portion of the key. Cloud Key Management Service provides functionality to retrieve the public key and functionality to decrypt ciphertext that was encrypted with the public key. Cloud KMS does not allow direct access to the private key.", **Tags:** ["tag1", "tag2", "tag3"], **Type:** "Difficult", **Emergency:** "Immediately Needed"	Post successfully added	Post successfully added	Pass
Verify the function with an **invalid tag**	**ID:** 7, **Title:** "Software Testing Explanation", **Body:** "Software testing is the process of checking the quality, functionality, and performance of a software product before launching. To do software testing, testers either interact with the software manually or execute test scripts to find bugs and errors, ensuring that the software works as expected. Software testing is also done to see if business logic is fulfilled, or if there are any missing gaps in requirements that need immediate tackles." , **Tags:** ["Software"], **Type:** "Easy", **Emergency:** "Ordinary"	Post not added, Try again	Post not added, Try again	Pass

	ID: 8, **Title:** "AI Innovation in Healthcare" **, Body: "**The fusion of physiological data with lifestyle and environmental factors is paving the way for deep phenotyping. Coupled with genomics, this is set to take healthcare to new heights. Bloomer Tech is combining cutting-edge fabric technology with ML to transform clothes, for example, women's bras, into wearable medical devices. AI's role in generating digital biomarkers promises transformative impacts, especially for diseases that disproportionately affect women. Bloomer Tech's focus lies in the cardiovascular system in women, given the challenges in diagnostics and treatment."**, Tags:** ["tag1", "tooLongTagHere123", "tag3"], **Type:** "Difficult", **Emergency:** "Immediately Needed"	Post not added, Try again	Post not added, Try again	Pass
Verify the function with an **invalid type for difficult**	**ID:** 9, **Title:** "Eco Wave Power"**, Body: "**The project generates clean and affordable electricity, using a simple design that allows the project's uniquely shaped floaters to be attached to existing man-made structures (such as piers, breakwaters and jetties), and thereby simplifying the installation process, as well as maintenance and accessibility.", **Tags:** ["Energy", "Engineering", "EcoWave", "Technology"], **Type:** "Easy", **Emergency:** "Ordinary"	Post not added, Try again	Post not added, Try again	Pass
	ID: 10, **Title:** "Prim's Algorithm"**, Body: "**The idea is to maintain two sets of vertices. The first set contains the vertices already included in the MST, and the other set contains the vertices not yet included. At every step, it considers all the edges that connect the two sets and picks the minimum weight edge from these edges."**, Tags:** ["Prim's", "Maths", "Prim'sMST"],**Type:** "Very Difficult", **Emergency:** "Immediately Needed"	Post not added, Try again	Post not added, Try again	Pass
Verify the function with an **invalid emergency for easy**	**ID:** 11, **Title:** "Supply Chain Attacks", **Body: "**Since many large organisations have strong cyber security protocols in place, attackers increasingly target their supply chains. These attacks through suppliers require sophisticated planning and can have dire consequences, such as the SolarWinds hack in 2020. TNO is developing technologies to prevent these supply chain attacks", **Tags:** ["Attacks", "Cyber", "Security"], **Type:** "Very Difficult", **Emergency:** "Ordinary"	Post not added, Try again	Post not added, Try again	Pass
	ID: 12, **Title:** "Engineering Principles", **Body: "**Engineering Principles are the principles of engineering and Engineering Data is the data used in the application of those principles. Engineering is the science of design, construction, maintenance and operation of structures, machines, systems and processes according to scientific and mathematical principals.", **Tags:** ["Engineering", "Principles"], **Type:** "Easy", **Emergency:** "Immediately Needed"	Post not added, Try again	Post not added, Try again	Pass

Function #2 - Check the functionality of the addComment function

Test Cases	Test Data	Expected Result	Test Result	Pass/Fail
Verify the function with a **valid comment**	**ID:** 1**, Comment:** "Strings has to be empty"	Comment successfully added	Comment successfully added	Pass
	ID: 1**, Comment:** "Create a node that will store the first character"	Comment successfully added	Comment successfully added	Pass
Verify the function with an **invalid words**	**ID:** 1**, Comment:** "The head node of the linked list should be the first character of the string, and so the head should be pointing to the first character of the string."	Comment not added, Try again.	Comment not added, Try again.	Pass
	ID: 1**, Comment:** "Create node"	Comment not added, Try again.	Comment not added, Try again.	Pass
	ID: 1**, Comment:** "each object carries some data"	Comment not added, Try again.	Comment not added, Try again.	Pass

Verify the function with an **Invalid first character**	**ID:** 1**, Comment:** “start iterating the string from its second character”	Comment not added, Try again.	Comment not added, Try again.	Pass
Verify the function with a **valid easy**	**ID: 1**, **Comment:** ["No nodes can be added", "Iterating the sting from character", "Initialise with a curr pointer"]	Comment successfully added	Comment successfully added	Pass
	ID: 1, Comment: "No nodes can be added"	Comment successfully added	Comment successfully added	Pass
Verify the function with an **invalid ordinary**	**ID:** 1**, Comment:** ["No nodes can be added", "Iterating the sting from character", "Initialise with a curr pointer", “Transverse the linked list”, "Using a string conversion to build it"]	Comment not added, Try again.	Comment not added, Try again.	Pass
	ID: 1**, Comment:** ["No nodes can be added", "Iterating the sting from character", "Initialise with a curr pointer", “Transverse the linked list”]	Comment not added, Try again.	Comment not added, Try again.	Pass
Verify the function with an **invalid amount comments**	**ID: 2, Comment:** ["No nodes can be added", "Iterating the sting from character", "Initialise with a curr pointer", “Transverse the linked list", "Using a string conversion to build it", "Use ArrayClass to create a string list"]	Comment not added, Try again.	Comment not added, Try again.	Pass
	ID: 1**, Comment:** ["No nodes can be added", "Iterating the sting from character", "Initialise with a curr pointer", “Transverse the linked list”]	Comment not added, Try again.	Comment not added, Try again.	Pass

Activity 2: User Story and Acceptance Criteria

User Story #1 – Searching for a Question

As a (register or guest) user, **I want to** search for a specific question using keywords and tags, **So that** I can find specific information that is related to my issue that I searched.

Acceptance Criteria:

1. **Displaying Sorted Results:** User is presented with the default that are highly voted or have the option to sort the results by date, comments, votes.
2. **Search Assistance:** The platform will display a ‘Search Help’ button to improve the users search input of no results are found.
3. **Search Input:** User clicks on search bar and the platform should display options for input of keywords or tags.

User Story #2 – Answering a Question

As a basic user, **I want to** respond to questions that have been posted by other users, **So that** I can help resolve other users queries and share my knowledge on certain topics.

Acceptance Criteria:

1. **Attaching Files:** User chooses to attach files, the system will display an button to attach files, validating that each file is under 20mb and supported file type.
2. **Select Answer**: The system should allow the user to click the ‘Answer’ button on a question to begin writing a response.
3. **Reviewing Response**: User will be able to review their response before posting the answer and have the ability to either post the answer or save the answer as a draft to post later.

User Story #3 – Posting a Question

As a premium user, **I want to** post a question on a certain topic to the platform, **So that** I can seek answers and comments for others with knowledge.

Acceptance Criteria:

1. **Using Tags:** User will be able to utilise tags that have been suggested or relevant to the topic to provide specific responses to the post.
2. **Post Interface:** The posting interface must include a tile and description box, the ability to add tags also the choice of adding a file which meets the requirements.

3. **Posting Question:** The system must validate the question and redirect the user to the question's page where it can be view for others to respond to.

User Story #4 – Voting on a Post

As a basic user**, I want to** vote on an answer on a question, **So that** the best most accurate response will be moved to the top to be visible by other users first.
Acceptance Criteria:

1. **Updating Votes:** The system will update the vote count in real-time as soon as a user puts in or changes their vote on the answer.
2. **Voting on Response:** The system should have buttons next to answers or comments that will allow user to upvote or downvote.
3. **Multiple Voting:** The user can only cast one vote per answer, but the user can change their vote but cannot vote multiple times on a post.

User Story #5 – Updating Membership Status

As a basic user, **I want to** alter my membership status on the CodeQA platform**, So that** I can become a premium user and unlock more features that the platform has**.**
Acceptance Criteria:

4. **Access to Feature:** The user must have immediate access to all premium features without needing to log out and information on the use the new premium features.
5. **Confirmation of Update:** The user will receive a confirmation email with detailed information of the change in membership and a message on the platform on the change
6. **Update Information Details:** The system must display detailed information about the premium membership, with the benefits, features available and the cost of the upgrade.

References:

- AltexSoft. (2023, December 1). *Acceptance Criteria: Purposes, Types, Examples and Best Prac*. AltexSoft. https://www.altexsoft.com/blog/acceptance-criteria-purposes-formats-and-best-practices/

- *Maven – Introduction to the POM*. (n.d.). Maven.apache.org. https://maven.apache.org/guides/introduction/introduction-to-the-pom.html

- *User Story Examples in Product Development | Definition and Template*. (n.d.). Www.productplan.com. https://www.productplan.com/glossary/user-story/#:~:text=Definition%3A%20A%20user%20story%20is