

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION
DURATION: 1 HOUR 30 MINUTES

SUMMER SEMESTER, 2022-2023
FULL MARKS: 75

SWE 4401: Software Requirement and Specifications

Programmable calculators are not allowed. Do not write anything on the question paper.

Answer all 4 (four) questions. Figures in the right margin indicate full marks of questions with corresponding COs and POs in parentheses.

Consider the following dialogue between a client and a company representative, discussing the requirements for a new men's fitness website:

Client: Hey there! So, I've got this idea for a website, right? It's all about men's fitness, but I want it to feel more like a buddy giving you advice rather than some corporate gig. You get me?

Company Rep: Absolutely, we love bringing unique visions to life. Could you tell me a bit more about the features you're imagining for your site?

Client: Sure thing! So, first off, I'm thinking it needs to be super user-friendly. Like, my grandpa could navigate it without getting lost. And it's gotta be engaging. Maybe something interactive where users can track their fitness progress, set goals, that kind of stuff.

Company Rep: Got it, user-friendly and interactive features for goal setting and progress tracking. Anything else in terms of content or functionality?

Client: Yeah, definitely. I want a section for workout plans tailored to different fitness levels and goals. Some predefined fitness plan could be added in the system by fitness trainer. But here's the kicker: I want it to feel personal. Like, each plan has a bit of a backstory, maybe some motivation from folks who have seen results. And nutrition advice by nutritionists, but nothing too preachy, you know? Real talk, simple meals that fit into your day.

Company Rep: Sounds great. So, personalized workout plans with motivational elements and straightforward nutrition advice. How about community features?

Client: Oh, for sure. A forum or something where people can share their journeys, challenges, triumphs. Maybe even find workout buddies. And, uh, it's gotta look cool, you know? Sleek, but tough...

Company Rep: A community forum, got it. And we'll definitely work on a design that matches that sleek yet tough aesthetic. Who could be the main users of your site?

Client: I'm thinking men in their 20s to 40s who are looking to get fit or stay in shape, but maybe they're not sure where to start. Or they're bored with their current routine. This site should feel like a push from a friend, not a drill sergeant, you know?

Company Rep: Understood. Men in their 20s to 40s looking for a friendly push towards fitness. Any other features or elements you have in mind?

Client: Hmm, maybe down the line, we could add some kind of subscription model. Access to exclusive content, personalized coaching, stuff like that. But let's not get ahead of ourselves. First things first, right?

Company Rep: Absolutely, we can start with the core features and consider expanding as the site grows. Anything else you want to add?

Client: Nah, I think that covers it. Just gotta make sure it's mobile-friendly too. Everyone's on their phones these days.

Company Rep: Definitely, we'll ensure the site is fully responsive and mobile-friendly. We'll start working on a proposal based on what you've told me today.

Client: Awesome, can't wait to see what you come up with. Thanks for making this feel easy!

Company Rep: It's our pleasure! We're excited to get started and bring your vision to life. We'll be in touch soon.

The client has outlined several key features for the site. The target users are between 20-40 years old who are aware of their fitness. As a requirement engineer, your task is to analyze this dialogue and extract the essential features and interactions described by the client.

1. Based on the provided dialogue, create a Use Case Diagram that represents the system's functionalities and interactions as described by the client. 20
(CO2)
(PO2)
2. Develop three detailed personas for the website ensuring that each reflects unique user characteristics, goals, and experiences. Subtly integrate the concept of special needs into all three profiles focusing on how inclusive design principles can enhance the user experience for all. 15
(CO1)
(PO3)
3. Elicit 7 user stories for the website focusing on different aspects of the system as discussed in the dialogue and reflected in your use case and personas. Each story should represent a specific feature that addresses the special needs of your personas. For each user story, provide a justification for each of the INVEST principles. 28
(CO1)
(PO1)
4. Create a Level 1 Data Flow Diagram (DFD) for the website based on the functionalities and interactions discussed in the given dialogue. Your DFD should show how data flows among the system's core processes, the data objects, and the external entities. 12
(CO1)
(PO3)