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Daffodil International University

Department of Software Engineering
Faculty of Science & Information Technology
Final Examination, Spring 2025
Course Code: SE212; Course Title: Software Requirements Specification & Analysis
Sections & Teachers: (A-D)-RMS, (E-H)-FRR, (I-L)-RM, (M-O)-HM, P-FC, Q-NS
Time: 2.00 Hour **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

Parvej, a young professional working in Dhaka, relies heavily on mobile banking to manage his finances. He uses an app called SecureBank, which offers a range of banking services on his smartphone. One morning, Parvej opens the app to check his account balance before making an online purchase. After launching, the app prompts him to log in using biometric authentication (fingerprint) or his username and password. Upon successful login, Parvej views a dashboard displaying his current and savings account balances, recent transactions, and quick-access buttons for key services. He wants to transfer funds to his friend's account at a different bank. He selects the "Send Money" option, enters the recipient's bank details, amount, and adds a payment note. Before confirming, the app displays a summary screen for review, followed by an OTP (One-Time Password) verification for security. The transfer is completed instantly, and Parvej receives a real-time notification and email confirmation. He then proceeds to pay his electricity bill using the bill payment feature. The app stores frequently used billers, so Parvej simply selects the provider, enters the amount, and completes the payment with a few taps. Curious about his spending habits, Parvej uses the app's expense tracker, which categorizes his transactions (food, utilities, transport, etc.) and presents a monthly expense report with charts. Satisfied, he logs out, and the app automatically ends the session after 5 minutes of inactivity for security. Throughout his usage, Parvej appreciates the app's user-friendly interface, fast performance, and data encryption features. He also knows that SecureBank complies with Bangladesh Bank regulations and follows industry standards for data protection and transaction monitoring.

1.	a)	*Explain the system requirements of SecureBank described in the scenario by preparing a Software Requirement Specification (SRS) table.*	**[Marks-10]**	**CLO-2** *Level-2*
2.	a)	*Develop a detailed use case description for the 'Transfer Funds' functionality described in the scenario.*	**[Marks-8]**	**CLO-3** *Level-3*
	b)	*Apply some suitable requirement prioritization technique to organize the requirements of this system. Demonstrate the rationale behind the prioritization with examples from the scenario.*	**[Marks-7]**	
	c)	*Construct a Requirement Traceability Matrix (RTM) for the system described in the scenario. Identify how each requirement can be traced throughout the development lifecycle, from source to implementation and testing.*	**[Marks-8]**	

LudoChamp is a mobile-based multiplayer board game designed to bring the traditional Ludo experience into the digital era. The app is developed to cater to a wide range of users from casual gamers to competitive players ensuring both entertainment and usability. Users can play with friends, join random matches, or even challenge AI opponents.

When a user opens the app, they are greeted with a visually engaging home screen, offering options like "Play with Friends," "Online Multiplayer," "Play vs Computer," "Tournament Mode," and "Profile." The

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main interface is intuitive and color-coded, reflecting the four-player Ludo board with clear indicators for each player's pieces.

To play with friends, users can either create a private room or join an existing one using a code. A chat feature is available in the room for players to interact before starting the game. Players can choose their preferred color, customize their profile avatar, and select rules like "quick mode" or "classic mode."

During the match, players roll the dice by tapping it, and animations show the dice roll and token movements. The app includes visual and audio feedback dice sounds, move highlights, and victory music—to enhance the user experience. There is also an undo button available in practice mode, which allows players to rethink their moves.

The app automatically handles turn switching, movement validation, and win condition checking. A scoreboard is shown at the top of the game screen, updating in real-time. Upon game completion, a match summary screen displays statistics such as number of kills, safe tokens, and total time taken.

The user can access a settings section at any point to adjust sound, notifications, or game preferences. User profile data, including game history, leaderboard ranking, and achievements, are stored securely and can be accessed from the profile tab.

LudoChamp is designed with responsive layouts suitable for various screen sizes and includes a dark mode to reduce eye strain. The UI is optimized for both Android and iOS platforms, ensuring consistent performance across devices.

3.	*a)*	*Analyze the scenario and create a prototype demo for the LudoChamp mobile gaming application. Break down the key user interface components, and functionalities that reflect user expectations and system operations.*	**[Marks-7]**	**CLO-4** *Level-4*

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