


**Programme Name & Branch: B.Tech & Computer Science (Core and Specialization)**
**Course Name & Code: Software Engineering & BCSE301L**
**Answer key**

Q. No.	Question																		
1.	<p>a) RAD model -Identification + Justification (3 marks) Reasons for not choosing other models (2 marks)</p> <p>b)</p> <table><tr><th>S.No.</th><th>List -1</th><th>List -2</th></tr><tr><td>1</td><td>Rapid Application Development</td><td>Build a quick prototype, deliver it to the customer, and take feedback</td></tr><tr><td>2</td><td>Evolutionary Prototyping</td><td>Build initial small requirement specifications, code them, and then ‘evolve’ the specifications and code as needed</td></tr><tr><td>3</td><td>Spiral</td><td>Assess risks at each step; do the most critical action first</td></tr><tr><td>4</td><td>Staged Delivery</td><td>Build initial requirement specification for several releases, then design and code in sequence.</td></tr><tr><td>5</td><td>Waterfall</td><td>Standard phases (requirement, design, code, test) in order</td></tr></table>	S.No.	List -1	List -2	1	Rapid Application Development	Build a quick prototype, deliver it to the customer, and take feedback	2	Evolutionary Prototyping	Build initial small requirement specifications, code them, and then ‘evolve’ the specifications and code as needed	3	Spiral	Assess risks at each step; do the most critical action first	4	Staged Delivery	Build initial requirement specification for several releases, then design and code in sequence.	5	Waterfall	Standard phases (requirement, design, code, test) in order
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2.	<p>(any 2 per scenario) (Either using template / simple description)</p> <p>1) User Story Card 1: Account Creation As a new student, I want to create a user account, So that I can access the registration system. Acceptance Criteria: User can provide necessary information such as name, email, and password. User receives a confirmation email upon successful registration.</p> <p>User Story Card 2: User Login As a student, I want to log in to my account, So that I can view my registration status and make changes if needed. Acceptance Criteria: User can log in using their registered email and password. Upon successful login, the user can view their registration details and edit personal information if required.</p>																		

### User Story Card 3: Registration Form

As a student,

I want to fill out a registration form,

So that I can enroll in courses for the upcoming semester.

Acceptance Criteria:

The registration form includes fields for personal information, contact details, academic history, and course preferences.

The form validates user inputs and provides error messages for incorrect or missing information.

2)

### User Story 1: Browse Available Courses

As a language learner,

I want to browse the list of available language courses for the upcoming semester,

So that I can explore my options and select courses that align with my learning goals and schedule.

Acceptance Criteria:

User can access the "Courses" section of the app.

The app displays a list of available language courses for the upcoming semester.

Each course listing includes details such as course title, instructor, schedule, and available seats.

### User Story 2: Enroll in Selected Courses

As a language learner,

I want to enroll in the language courses I've selected,

So that I can secure my spot in the classes and begin my learning journey.

Acceptance Criteria:

User can add selected courses to their enrollment cart.

User can review and modify their course selections before finalizing enrollment.

3)

### User Story 1: Track Learning Progress

As a language learner,

I want to track my progress in language learning activities,

So that I can monitor my improvement and stay motivated in my learning journey.

Acceptance Criteria:

User can access a dashboard or progress tracker within the app.

The dashboard displays relevant metrics such as completed lessons, quizzes taken, vocabulary learned, and overall proficiency level.

### User Story 2: Set Learning Goals and Milestones

As a language learner,

I want to set personalized learning goals and milestones,

So that I can track my progress and work towards achieving specific objectives.

Acceptance Criteria:

User can define specific learning goals, such as mastering a certain number of vocabulary words, completing a language level, or achieving a target proficiency score.

The app allows users to set deadlines or target dates for each learning goal.

4)

### User Story 1: Take Language Proficiency Quizzes

As a language learner,

I want to take language proficiency quizzes,

So that I can assess my language skills and identify areas for improvement.

Acceptance Criteria:

	<p>User can access a variety of language proficiency quizzes within the app. The app offers quizzes covering different language skills such as vocabulary, grammar, listening comprehension, and reading comprehension.</p> <p>User Story 2: Create Customized Practice Quizzes As a language learner, I want to create customized practice quizzes tailored to my learning needs, So that I can reinforce specific language skills or topics. Acceptance Criteria: User can access a quiz creation tool within the app. The tool allows users to select specific language skills or topics for inclusion in the quiz.</p> <p>5) User Story 1: Rate and Review Completed Courses As a language learner, I want to rate and review completed courses, So that I can share my learning experience with other users and provide feedback to course instructors. Acceptance Criteria: User can access a course rating and review feature within the app. Upon completing a course, the app prompts the user to rate the course and provide a written review.</p> <p>User Story 2: Provide Feedback on Course Content and Features As a language learner, I want to provide feedback on course content and features during the learning process, So that I can contribute to the improvement of course materials and help shape future course offerings. Acceptance Criteria: User can access a feedback form or feature within the app while engaging with course content. The feedback form allows users to provide specific comments, suggestions, or requests related to course content, materials, exercises, and features. User can submit feedback anonymously or optionally provide identifying information.</p>
3.	<p>a) <math>FP = UFP * CAF</math> (1 marks)  <math>FP = UPF * VAF</math>  <math>= 1.01 * 606</math>  <math>= 612.06</math> (4 marks)</p> <p>b) Stakeholders: (2 marks)  Target Users: Residents of rural communities seeking mental health support (patients).  Therapists: Licensed mental health professionals providing therapy through the app.  Investors: Individuals or organizations funding the project's development.  Technology Partners: Companies providing the telehealth platform and app development services.  Government Agencies: Public health or mental health organizations potentially supporting the initiative.  Community Leaders: Representatives of rural communities advocating for better healthcare access.</p> <p>Objectives and Prioritization: (3 marks)  Increase Access to Therapy (Highest Priority): Ensure the app effectively connects residents in rural communities with qualified therapists, focusing on user adoption and engagement.  Improve Service Quality: Provide a seamless and secure platform for therapists to deliver effective therapy via video conferencing.</p>

	<p><b>Financial Sustainability:</b> Establish a viable business model that covers operational costs and attracts investment for long-term growth.</p> <p><b>Data Security and Privacy:</b> Implement robust security measures to protect patient privacy and comply with relevant regulations.</p> <p><b>Community Outreach and Integration:</b> Partner with community leaders and organizations to raise awareness and promote app adoption within rural populations.</p> <p><b>Prioritization:</b></p> <p>The objectives are listed in order of priority, with increasing access to therapy being the most crucial aspect. However, financial sustainability is also critical for long-term viability. Data security and privacy are non-negotiable, while outreach and integration efforts can be adapted based on available resources.</p>
4.	<p><b>Sprints:</b> Assume any duration (1-2 week sprints) but adjust the duration based on team capacity and complexity.</p> <p><b>Sprint 1:</b></p> <p><b>Milestone:</b> Define core functionalities and user personas.</p> <p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• User research report with target audience insights and personas.</li> <li>• Site map and wireframes outlining key functionalities and user journeys.</li> <li>• Definition of minimum viable product (MVP) features for initial launch.</li> </ul> <p><b>Sprint 2:</b></p> <p><b>Milestone:</b> Develop and test core functionalities.</p> <p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Functional prototype of the e-commerce platform with core features (product browsing, search, cart, and checkout).</li> <li>• Usability testing report with identified issues and improvement suggestions.</li> <li>• Integration with payment gateway and shipping APIs.</li> </ul> <p><b>Sprint 3:</b></p> <p><b>Milestone:</b> Design and implement user interface.</p> <p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• High-fidelity mockups and style guide for the e-commerce platform.</li> <li>• Responsive design implementation for various devices.</li> <li>• Content management system (CMS) setup for product information and blog updates.</li> </ul> <p><b>Sprint 4:</b></p> <p><b>Milestone:</b> Integrate advanced features and marketing tools.</p> <p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Wishlist, product reviews, and customer account features implemented.</li> <li>• Integration with email marketing platform and social media channels.</li> <li>• Search engine optimization (SEO) implementation for product pages.</li> </ul> <p><b>Sprint 5:</b></p> <p><b>Milestone:</b> Pre-launch testing and refinement.</p> <p><b>Deliverables:</b></p> <ul style="list-style-type: none"> <li>• Comprehensive load testing and performance optimization.</li> <li>• Security audit and penetration testing to ensure data protection.</li> <li>• Training materials for Threads &amp; Co. staff on platform management.</li> </ul>
5.	<p><b>Functional Requirements:</b> (any 5, each 1 mark)</p> <p><b>User-facing:</b></p> <ol style="list-style-type: none"> <li>1. User registration and login: Users should be able to register with their email address and create a secure account.</li> <li>2. Event browsing and search: Users should be able to browse events by various criteria like location, date, category, keyword, etc.</li> </ol>

	<ol style="list-style-type: none"> <li>3. Event details: Users should be able to view details of each event, including date, time, venue, pricing, description, and available tickets.</li> <li>4. Ticket purchase: Users should be able to purchase tickets securely using various payment methods (credit card, digital wallets, etc.).</li> <li>5. Confirmation and tickets: Users should receive confirmation emails with QR codes upon successful ticket purchase.</li> <li>6. QR code entry: Users should be able to scan their QR codes at the venue for entry.</li> <li>7. Profile management: Users should be able to manage their profile information, purchase history, and event bookings.</li> <li>8. User reviews and ratings: Users should be able to leave reviews and ratings for events they have attended.</li> </ol> <p>Event organizer-facing:</p> <ol style="list-style-type: none"> <li>9. Event creation and management: Organizers should be able to create event listings, enter details, upload images, and set ticket prices.</li> <li>10. Ticket management: Organizers should be able to track ticket sales, view seating charts, and manage cancellations.</li> <li>11. Attendee information: Organizers should be able to view attendee information for planning purposes.</li> <li>12. Analytics and reporting: Organizers should have access to analytics and reports on event performance, ticket sales, and attendee demographics.</li> </ol> <p>Non-Functional Requirements: (any 1 under each, 5 marks)</p> <p>Security:</p> <ol style="list-style-type: none"> <li>1. User data security: User data, including personal information and payment details, should be securely stored and protected.</li> <li>2. Transaction security: All financial transactions should be secure and are to be non-compliant.</li> <li>3. Data encryption: All sensitive data should be encrypted at rest and in transit.</li> </ol> <p>Usability:</p> <ol style="list-style-type: none"> <li>1. Intuitive interface: The user interface should be simple, intuitive, and easy to navigate.</li> <li>2. Mobile-friendly: The platform should be accessible and usable on mobile devices.</li> <li>3. Responsive design: The platform should adapt to different screen sizes and devices.</li> </ol> <p>Reliability:</p> <ol style="list-style-type: none"> <li>1. High availability and performance: The platform should be available 24/7 with minimal downtime to ensure users can seamlessly discover, book, and manage events.</li> <li>2. Performance should be consistent even during peak usage periods to avoid slow loading times or errors.</li> </ol> <p>Recoverability:</p> <ol style="list-style-type: none"> <li>1. Disaster recovery plan and data backup: The platform should have a robust disaster recovery plan in place to quickly restore operations in case of a system outage or data loss.</li> <li>2. Regular backups of all data should be stored securely off-site for easy retrieval.</li> </ol> <p>Portability:</p> <ol style="list-style-type: none"> <li>1. Platform accessibility across devices and browsers: The platform should be accessible and functional on various devices and browsers, including desktops, smartphones, and tablets, without compromising functionality or user experience.</li> </ol>
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