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**IT314: Software Engineering**

**Group-33**

**Lab-3: Task-3**

**GROUP MEMBERS:**

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**Online Learning Portal : LearnIt**

**Task 3:**

* Develop Sprints from the Product Backlog.
* Specify your sprint details with an estimated timeline for development (use FP or OP for the estimation).
* Estimate how many sprints you can develop in your course project.

### 

### **SPRINTS:**

#### **Sprint 1: Setup and Basic User Authentication (1 Week : Sept 15 - Sept 21)**

**Objectives:**

* Set up the project structure (frontend and backend).
* Implement user registration and login/logout functionality.
* Ensure basic security (password hashing, encrypted connections).

**Deliverables:**

* Basic project structure with authentication flow complete.

| **Component Type** | **Description** | **Count** | **Weight** | **Total FP** |
| --- | --- | --- | --- | --- |
| ILF | User Profiles Data | 1 | 10 | 10 |
| EIF | Global State Table | 1 | 7 | 7 |
| EI | User Registration Form, Login Form | 2 | 4 | 8 |
| EO | Registration Confirmation, Logout Confirmation | 2 | 5 | 10 |
| EQ | Registration and Login Verification Query | 2 | 4 | 8 |
| **Total unadjusted FPs** |  |  |  | **43 FPs** |

**User Stories to Consider:**

1. As an unregistered user i want to register to the platform so that i can take courses / i can create courses.
2. As a registered user I want to login to the platform so that I can take courses or I can create courses.
3. As a system administrator, I want to securely store and view login credentials so that I can authenticate users.
4. As an admin, I want to manage user accounts so that I can maintain the integrity and security of the platform.

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#### **Sprint 2: Profile Management (1.5 Week : Sept 22 - Oct 02)**

**Objectives:**

* Implement "Update Profile Details" functionality.
* Create "View Profile" functionality for all roles.
* Ensure data validation and error handling for profile updates.

**Deliverables:**

* Functional user profiles with update and view capabilities.

| **Component Type** | **Description** | **Count** | **Weight** | **Total FP** |
| --- | --- | --- | --- | --- |
| ILF | User Profile Data | 1 | 10 | 10 |
| EIF | Roles Data | 1 | 7 | 7 |
| EI | Update Profile Input Form | 1 | 4 | 4 |
| EO | Profile View | 1 | 5 | 5 |
| EQ | Query Profile Data for Display and Update Validation | 2 | 4 | 8 |
| **Total unadjusted FPs** |  |  |  | **34 FPs** |

**User Stories to Consider:**

1. As a user I want to update my profile page so that my profile has up-to-date information.
2. As a registered user I want to login to the platform so that I can take courses or I can create courses.
3. As a Student, I want my personalized dashboard so that I can see my progress and upcoming live lecture and quiz.

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#### **Sprint 3: Course Management (1. 5 Week : Oct 03 - Oct 20 - excluding exam week)**

**Objectives:**

* Implement course creation and management by instructors.
* Develop functionality for course previews, and filtering.
* Ensure course approval and moderation by admin.

**Deliverables:**

* Functional course management features including previews and filtering.

| **Component Type** | **Description** | **Count** | **Weight** | **Total Fp** |
| --- | --- | --- | --- | --- |
| ILF | Course Data | 1 | 10 | 10 |
| EIF | Course Catalog | 1 | 7 | 7 |
| EI | Course Creation Form, Course Filtering Form, Roadmap Input | 3 | 4 | 12 |
| EO | Course Preview, Search Results, Roadmap Results | 3 | 5 | 15 |
| EQ | Course Approval Query, Roadmap Query | 2 | 4 | 8 |
| **Total unadjusted FPs** |  |  |  | **52 FPs** |

**User Stories to Consider:**

1. As a user I want to search and filter courses so that I can see available courses of my preference.
2. As a user I want to preview a course and watch demo lectures of a course before purchasing a course so that I can make better decisions for a course to take or not to take.
3. As an instructor, I want to create a course so that I can share my knowledge with learners.
4. As an instructor, I want a dashboard so that I can efficiently manage all course-related details from one place.
5. As an instructor, I want to collaborate with other instructors to develop courses together.
6. As an instructor, I want to be able to set pricing and discounts on my offered course so that more students will enroll.
7. As a user I want a roadmap for a particular goal so that I can choose the order of courses to take to achieve my goal.

#### **Sprint 4: Learning Tools (2 Weeks : Oct 21 - Nov 05)**

**Objectives:**

* Implement course materials upload and quizzes.
* Develop functionalities for live lectures and discussion forums.
* Ensure students can access materials and quizzes.

**Deliverables:**

* Functional tools for uploading course materials, quizzes, and live lectures.

| **Component Type** | **Description** | **Count** | **Weight** | **Total Fp** |
| --- | --- | --- | --- | --- |
| ILF | Course Materials | 1 | 10 | 10 |
| EIF | Global Course Materials Summary | 1 | 7 | 7 |
| EI | ​​Upload Materials Form, Quiz Creation Form | 2 | 4 | 8 |
| EO | Quiz Access, Material Download | 2 | 5 | 10 |
| EQ | Quiz Grading Query, Discussion Query | 2 | 4 | 8 |
| **Total unadjusted FPs** |  |  |  | **43 FPs** |

**User Stories to Consider:**

1. As an instructor I want to upload videos to my course so that students can access it remotely.
2. As an instructor I want to take live lectures so that students can learn interactively.
3. As an instructor, I want to be able to upload course materials so that students can revise it.
4. As an instructor, I want to create a quiz so that students can evaluate their progress.
5. As a student, I want to download course materials of enrolled courses, so that I can access them offline.
6. As a user, I want to participate in discussion forums so that I can interact with other students and the course instructor to solve my doubts about the course content.
7. As a system, I want to grade quizzes, so that students can see their scores and understand their performance.

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#### **Sprint 5: User Engagement and Support (1 Week : Nov 06 - Nov 13)**

**Objectives:**

* Implement user engagement features like bookmarks and watchlists.
* Develop support features for customer service and notifications.
* Ensure feedback mechanisms and collaboration tools are in place.

**Deliverables:**

* Features for user engagement, support, and feedback integrated.

| **Component Type** | **Description** | **Count** | **Weight** | **Total Fp** |
| --- | --- | --- | --- | --- |
| ILF | User Engagement Data | 1 | 10 | 10 |
| EIF | Global User Engagement Summary | 1 | 7 | 7 |
| EI | Bookmark, Watchlist Management | 2 | 4 | 8 |
| EO | Feedback Submission, Customer Support Access | 2 | 5 | 10 |
| EQ | Notification System Query | 1 | 4 | 4 |
| **Total unadjusted FPs** |  |  |  | **39 FPs** |

**User Stories to Consider:**

1. As a student, I want to bookmark a course or course materials, so that I can access them easily.
2. As a student, I want to see my past history, so that I can resume my lecture progress.
3. As a student, I want to view the course leaderboard, so that I can understand my ranking and performance compared to my peers.
4. As a student,I want to review and rate a course after I complete it, So that I can share feedback and help future students make decisions.
5. As a user, I want customer support, so that I can resolve my technical queries with this feature.
6. As a system, I want to send notifications about their courses/enroll courses to users so that they stay updated about course activities.

**Sprint 6: Admin Features and Security (1 Week : Nov 14 - Nov 20)**

**Objectives:**

* Implement admin features for managing users and course approvals.
* Develop security features for payment processing and user authentication.
* Ensure the generation of certificates and handling of refunds.

**Deliverables:**

* Fully functional admin features, secure payment processing, and certificate generation.

| **Component Type** | **Description** | **Count** | **Weight** | **Total Fp** |
| --- | --- | --- | --- | --- |
| ILF | Admin Data Management | 1 | 10 | 10 |
| EIF | Global Admin Management Summary | 1 | 7 | 7 |
| EI | User Management Form and Course Approval Form | 2 | 4 | 8 |
| EO | Certificate Generation and Payment Handling | 2 | 5 | 10 |
| EQ | Admin Authentication Query | 1 | 4 | 4 |
| **Total unadjusted FPs** |  |  |  | **39 FPs** |

**User Stories to Consider:**

1. As a system, I want to automatically generate and send certificates to users who completed a course, so that they can have proof of their course completion.
2. As a system, I want to securely handle the payment process of course purchases, so that users can complete their payment safely.
3. As a system, I can assign badges to the users based on their performances, consistency, and achievements.
4. As an admin I want to verify course content so that no inappropriate content is uploaded.
5. As an admin, I want to be able to receive customer queries so that I can help them to resolve.
6. As an admin, I want to approve or reject course submissions so that only quality and appropriate content is available on the platform.
7. As an admin, I want to handle payments and process refunds so that financial transactions are managed accurately.

# **Complexity Adjustment Factor Calculation**

| **Sr. No.** | **Complexity Factor - Fi** | **Value Fi** |
| --- | --- | --- |
|  | Backup and Recovery | 3 |
|  | Data Communication | 3 |
|  | Distributed Processing | 2 |
|  | Is Performance Critical | 4 |
|  | Existing Operating Environment | 3 |
|  | Online Data Entry | 4 |
|  | Input Transaction Built Over Multiple Screens | 4 |
|  | Master Files Updated On-line | 4 |
|  | Complexity of Inputs, Outputs, Files, Inquiries | 4 |
|  | Complexity of Processing | 4 |
|  | Code Design for Reuse | 3 |
|  | Are Conversion/Installation Included in Design | 2 |
|  | Multiple Installations | 2 |
|  | Application Designed to Facilitate Change by User | 3 |
|  | **Total -** Fi | **44** |

CAF = 0.65 + (0.01) \* Fi = **1.09**

**Function Point Formula:**

FP = UFC \* CAF

**Function Point Calculation for Sprints:**

| **Sprint** | **Total Factor** | **CAF** | **UFP** | **FP** |
| --- | --- | --- | --- | --- |
| Sprint 1: Setup and Basic User Authentication | 44 | 1.09 | 43 | 46.87 |
| Sprint 2: Profile Management | 44 | 1.09 | 34 | 37.06 |
| Sprint 3: Course Management | 44 | 1.09 | 52 | 56.68 |
| Sprint 4: Learning Tools | 44 | 1.09 | 43 | 46.87 |
| Sprint 5: User Engagement and Support | 44 | 1.09 | 39 | 42.51 |
| Sprint 6: Admin Features and Security | 44 | 1.09 | 39 | 42.51 |
| **Total** |  |  |  | **272.5** |