Dhirubhai Ambani Institute of Information and Communication Technology

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IT-314

Software Engineering

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LAB 3: Use Case Modelling and Product Backlog (TASK 3)

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LAB 3: Use Case Modelling and Product Backlog (TASK 3)

Sprint Details:

Sprint 1: User Registration and Authentication

Objective: To develop the core functionalities like User Registration, Authentication and User profile management.

User stories:

1. To register and log in/out to the platform.
2. To edit and view profile.

Function Point Calculation:

- **Unadjusted Function Point (UFP):**

  1. External Input
  2. External Output
  3. External Queries
  4. Internal Logical Files
  5. External Interface Files

Function Type	Count	Complexity	Weight	FP
External Input (EI)	4	Low	3	12
External Output (EO)	3	Low	4	12
External Queries (EQ)	2	Low	3	6
Internal Logical Files (ILF)	2	Low	7	14
External Interface Files (EIF)	0	-	-	0
Unadjusted Function Point (UFP) :=				**44**

- **Complexity Adjustment Factor (CAF):**

Factor No.	General System Characteristics	Weight (0-5)
1	Data Communications	0
2	Distributed Data Processing	0
3	Performance	2
4	Heavily Used Configuration	2
5	Transaction Rate	2
6	On-line Data Entry	4
7	End-user Efficiency	3
8	On-line Update	4
9	Complex Processing	3
10	Reusability	1
11	Installation Ease	2
12	Operational Base	3
13	Multiple Sites	0
14	Facilitate Change	3
	Total :=	**29**

CAF = 0.65 + (0.01 * Total)

= 0.65 + (0.01 * 29)

= 0.94

- **Function Point (FP):**

FP = UFP * CAF = 44 * 0.94 = 41.36

FP = 42

- **Time for Sprint: 1 week**

LAB 3: Use Case Modelling and Product Backlog (TASK 3)

Sprint 2: Forum Structure, Space creation and Post Creation

Objective: Implement a general forum structure and allow users to create spaces for discussion and post content within the forum.

User Stories:

1. To create space.
2. To create questions and posts.
3. To assign tags to a space.
4. To add a space description.
5. To join spaces.

Function Point Calculation:

- **Unadjusted Function Point (UFP):**

  1. External Input
  2. External Output
  3. External Queries
  4. Internal Logical Files
  5. External Interface Files

Function Type	Count	Complexity	Weight	FP
External Input (EI)	6	Low	3	18
External Output (EO)	4	Low	4	16
External Queries (EQ)	2	Low	3	6
Internal Logical Files (ILF)	5	Low	7	35
External Interface Files (EIF)	0	-	-	0
Unadjusted Function Point (UFP) :=				**75**

- **Complexity Adjustment Factor (CAF):**

Factor No.	General System Characteristics	Weight (0-5)
1	Data Communications	0
2	Distributed Data Processing	0
3	Performance	2
4	Heavily Used Configuration	2
5	Transaction Rate	2
6	On-line Data Entry	4
7	End-user Efficiency	3
8	On-line Update	4
9	Complex Processing	3
10	Reusability	2
11	Installation Ease	2
12	Operational Base	3
13	Multiple Sites	0
14	Facilitate Change	3
	Total :=	**30**

CAF = 0.65 + (0.01 * Total)

= 0.65 + (0.01 * 30)

= 0.95

- **Function Point (FP):**

FP = UFP * CAF = 75 * 0.95 = 71.25

FP = 72

- **Time for Sprint: 2 weeks**

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Sprint 3: Commenting, Replies, Upvote and Downvote, and bookmark functionality

Objective: To create an interactive environment where everyone can discuss various topics and upvote and downvote to **highlight valuable content**.

User Stories:

1. To add comments to post.
2. To respond to comments.
3. To vote up/down post.
4. To rate comments up/down.
5. To bookmark post for later.
6. To follow or block other users.

Function Point Calculation:

- **Unadjusted Function Point (UFP):**

  1. External Input
  2. External Output
  3. External Queries
  4. Internal Logical Files
  5. External Interface Files

Function Type	Count	Complexity	Weight	FP
External Input (EI)	8	Low	3	24
External Output (EO)	6	Low	4	24
External Queries (EQ)	5	Low	3	15
Internal Logical Files (ILF)	4	Low	7	28
External Interface Files (EIF)	0	-	-	0
Unadjusted Function Point (UFP) :=				**91**

- **Complexity Adjustment Factor (CAF):**

Factor No.	General System Characteristics	Weight (0-5)
1	Data Communications	0
2	Distributed Data Processing	0
3	Performance	1
4	Heavily Used Configuration	2
5	Transaction Rate	1
6	On-line Data Entry	4
7	End-user Efficiency	1
8	On-line Update	4
9	Complex Processing	2
10	Reusability	1
11	Installation Ease	1
12	Operational Base	3
13	Multiple Sites	0
14	Facilitate Change	3
	Total :=	**23**

CAF = 0.65 + (0.01 * Total)

= 0.65 + (0.01 * 23)

= 0.88

- **Function Point (FP):**

FP = UFP * CAF = 91 * 0.88 = 80.08

FP = 81

- **Time for Sprint: 2 weeks**

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Sprint 4: Implementing search and filter functionality

Objective: Allowing users to search for spaces of their interest and allowing them to filter the relevant results.

User stories:

1. To search for posts or spaces.
2. To apply filters.
3. To assign tags to the posts that I create.

Function Point Calculation:

- **Unadjusted Function Point (UFP):**

  1. External Input
  2. External Output
  3. External Queries
  4. Internal Logical Files
  5. External Interface Files

Function Type	Count	Complexity	Weight	FP
External Input (EI)	3	Low	3	9
External Output (EO)	3	Low	4	12
External Queries (EQ)	1	Low	3	3
Internal Logical Files (ILF)	3	Low	7	21
External Interface Files (EIF)	0	-	-	0
			Unadjusted Function Point (UFP) :=	**45**

- **Complexity Adjustment Factor (CAF):**

Factor No.	General System Characteristics	Weight (0-5)
1	Data Communications	0
2	Distributed Data Processing	0
3	Performance	3
4	Heavily Used Configuration	3
5	Transaction Rate	3
6	On-line Data Entry	4
7	End-user Efficiency	4
8	On-line Update	3
9	Complex Processing	2
10	Reusability	2
11	Installation Ease	2
12	Operational Base	3
13	Multiple Sites	0
14	Facilitate Change	2
	Total :=	**31**

CAF = 0.65 + (0.01 * Total)

= 0.65 + (0.01 * 31)

= 0.96

- **Function Point (FP):**

FP = UFP * CAF = 45 * 0.96 = 43.2

FP = 44

- **Time for Sprint: 1 week**

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Sprint 5: Moderator Panel

Objective: Allowing space moderators to monitor the content posted on the space and take necessary actions.

User stories:

1. To issue warning to the users violating platform environment.
2. To delete inappropriate posts.
3. To ban users who violate rules.
4. To review reports from users and new user account.
5. To temporarily lock a user's account for a specific time (suspend).
6. To temporarily mute users who are being disruptive in discussions.
7. To review user appeals for ban or suspension.
8. To be able to modify the space settings.

Function Point Calculation:

- **Unadjusted Function Point (UFP):**

  1. External Input
  2. External Output
  3. External Queries
  4. Internal Logical Files
  5. External Interface Files

Function Type	Count	Complexity	Weight	FP
External Input (EI)	7	Low	3	21
External Output (EO)	8	Low	4	32
External Queries (EQ)	0	Low	3	0
Internal Logical Files (ILF)	7	Low	7	49
External Interface Files (EIF)	0	-	-	0
			Unadjusted Function Point (UFP) :=	**102**

- **Complexity Adjustment Factor (CAF):**

Factor No.	General System Characteristics	Weight (0-5)
1	Data Communications	0
2	Distributed Data Processing	0
3	Performance	2
4	Heavily Used Configuration	2
5	Transaction Rate	4
6	On-line Data Entry	4
7	End-user Efficiency	3
8	On-line Update	3
9	Complex Processing	4
10	Reusability	3
11	Installation Ease	3
12	Operational Base	3
13	Multiple Sites	0
14	Facilitate Change	3
	Total :=	**34**

CAF = 0.65 + (0.01 * Total)

= 0.65 + (0.01 * 34)

= 0.99

- **Function Point (FP):**

FP = UFP * CAF = 102 * 0.99 = 100.98

FP = 101

- **Time for Sprint: 2-3 Weeks**

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Sprint 6: Admin Panel

Objective: Allow admins to ensure proper functioning of the platform.

User stories:

1. To manage the users.
2. To analyse platform activity and engagement.
3. To manage the sponsors.
4. To review reports and delete user accounts violating platform T&C.

Function Point Calculation:

- Unadjusted Function Point (UFP):

1. External Input:
2. External Output:
3. External Queries:
4. Internal Logical Files:
5. External Interface Files:

Function Type	Count	Complexity	Weight	FP
External Input (EI)	5	Low	3	15
External Output (EO)	4	Low	4	16
External Queries (EQ)	1	Low	3	3
Internal Logical Files (ILF)	4	Low	7	28
External Interface Files (EIF)	0	-	-	0
Unadjusted Function Point (UFP) :=				**62**

- **Complexity Adjustment Factor (CAF):**

Factor No.	General System Characteristics	Weight (0-5)
1	Data Communications	0
2	Distributed Data Processing	0
3	Performance	3
4	Heavily Used Configuration	3
5	Transaction Rate	4
6	On-line Data Entry	4
7	End-user Efficiency	4
8	On-line Update	3
9	Complex Processing	2
10	Reusability	3
11	Installation Ease	2
12	Operational Base	3
13	Multiple Sites	0
14	Facilitate Change	2
	Total :=	**33**

CAF = 0.65 + (0.01 * Total)

= 0.65 + (0.01 * 33)

= 0.98

- **Function Point (FP):**

FP = UFP * CAF = 62 * 0.98 = 60.76

FP = 61

- **Time for Sprint: 1-2 weeks**

- **Total Function Point: 401 FPs**
- **Total Time: 9-11 Weeks**