American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

PROJECT TITLE

Income Tax Return Assessment Software

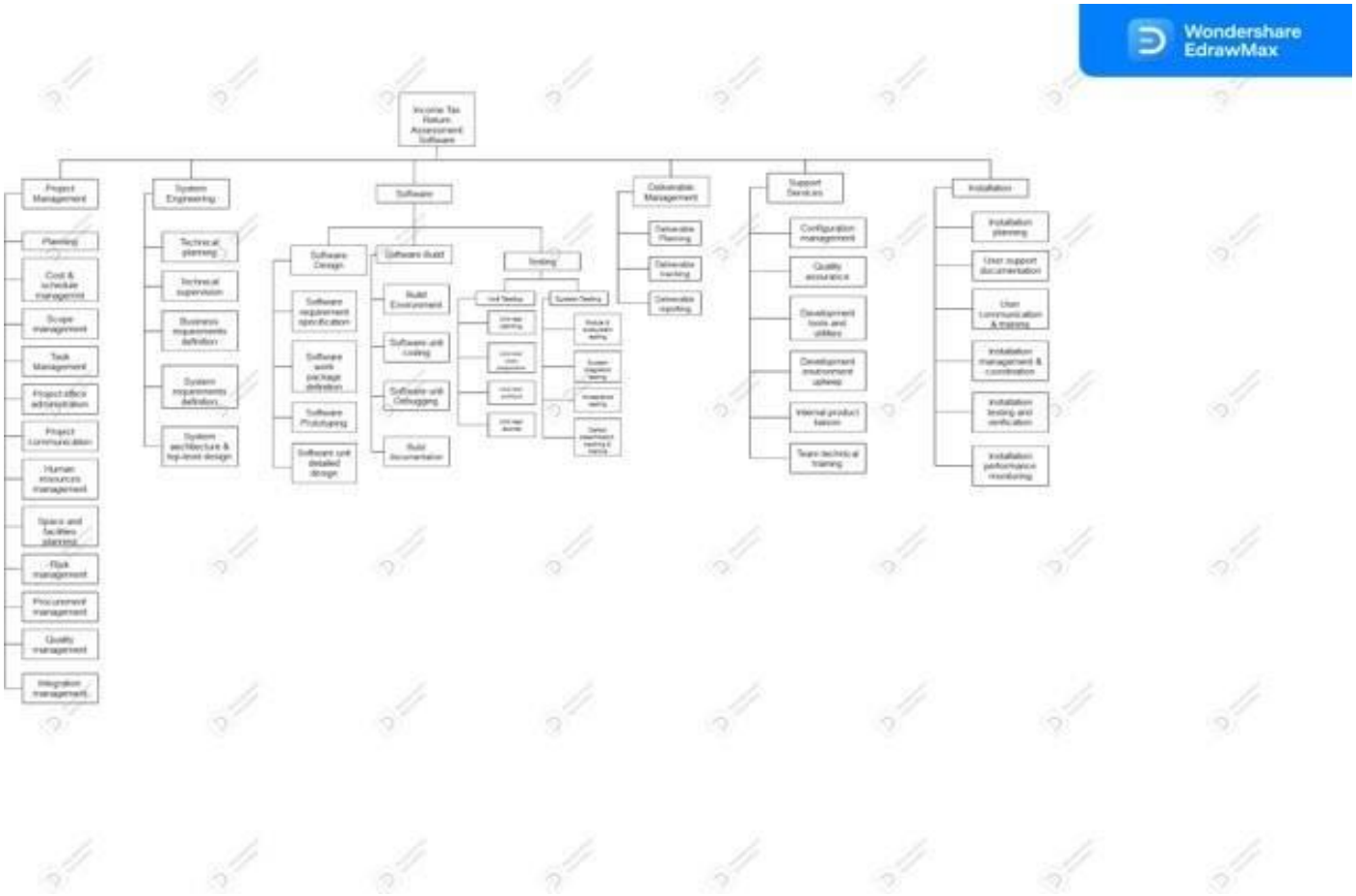
A Software Engineering Project Submitted
By

Semester: Summer_2023-24		**Section:A**	**Group Number:7**	
SN	Student Name	Student ID	Contribution (CO1+CO2)	Individual Marks
01	Avishek Chanda Pratyay	21-45489-3	20%	
02	Mehedi Hasan	21-45513-3	20%	
03	Dipta Banik	21-45520-3	20%	
04	Sadia Afroz Shuprova	22-46462-1	20%	
05	MD.Hasibul Hassan	22-46289-1	20%	

The project will be Evaluated for the following Course Outcomes

CO1: *Analyze* the impact of software engineering models over various context of software development to assess societal, health, safety, legal and cultural issues.	Total Marks	
Project Background Analysis and feasibility (needs, goal, benefits, etc.)	[5 Marks]	
Analysis the impact of societal, health, safety, legal and cultural issues	[5Marks]	
Review of existing Studies and Relevant Example	[5Marks]	
CO2: *Explain* appropriate software engineering model, project management roles and their skills in the context of professional engineering practice and solutions to complex engineering problems in a software development environment.	Total Marks	
Appropriate Process Model Selection and Argumentation with Evidence	[5Marks]	
Evidence of Argumentation regarding process model selection	[5Marks]	
Submission, Defense, Completeness, Spelling, grammar and Organization of the Project report	[5Marks]	

Work Breakdown Model



Constructive cost Model (*COCOMO*):

Let's assume Source Line of Code is 4000.

So, effort need to be, PM = 2.4 $(4000/1000)^{1.05}$ = 10.289

Development time, DM = 2.5 * (PM)0.38 = 6.0623 = 6

Required number of people, ST = PM/DM = 1.697 = 2

That means we need to work for (4*6) =24 weeks.

Timeline Chart (Project Plan)

	Pregame Phase						Development												Postgame Phase					
	Planning			Architecture			Sprint1				Sprint2				Sprint3									
Weeks Person	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24
A:																								
B:																								
C:																								
D:																								
E:																								
F:																								
G:																								
H:																								
I:																								

A: Project initiation, Scoping, requirements gathering and planning

B: Design, product backlog creation and sprint planning

C: Requirements for each sprint

D: Analysis for each sprint

E: Development for each sprint

F: Testing for each sprint

G: Integration testing

H: System testing

I: Release preparation and launch

EVA Analysis:

Task	Planned effort	Actual effort
1	10	11
2	8	10
3	7	5
4	9	7
5	7.5	6
6	4	7
7	14	11
8	6	7
9	9.5	10.5
10	8.5	10
11	6	---
12	10	---
13	5	---
14	8	---
15	6	---

Given Total Task=54

Effort Estimated=309

BAC=309

SPI=BCWP/BCWS=83.5/118.5=0.70464

SV=BCWP-BCWS=83.5-118.5=-35 person-day

CPI=BCWP/ACWP=83.5/84.5=0.99

CV=BCWP-ACWP=83.5-84.5=-1 person-day

% schedule for completion=BCWS/BAC=(118.5/309)*100%=38.34%

% complete=BCWP/BAC=(83.5/309)*100%=27.02%.

Risk Management Table

Risks	Category	Probability	Impact	RMMM
Size estimate maybe significantly low	PS	70%	2	
Larger number of users than planned	PS	20%	3	
Less reuse than planned	PS	50%	2	
End user resists system	BU	30%	2	
Delivery deadline will be tightened	BU	75%	1	
Funding will be lost	CU	30%	1	
Customer will change requirements	PS	25%	2	
Technology will not meet expectations	TE	20%	1	
Lack of Training on tools	DE	50%	3	
Staff inexperienced	ST	30%	3	
Staff turnover will be high	ST	60%	2	
Personnel shortfalls	ST	50%	2	
Unrealistic time and cost estimates	BU	35%	1	
Developing the wrong software functions	PR	17%	1	
Developing the wrong interface	PR	20%	2	
Gold plating	PR	30%	2	
Late changes to requirements	CU	60%	2	

Shortfalls in externally performed tasks	DE	40%	3	
Real time performance problems	ST	45%	3	
Development technically too difficult	TE	60%	2	
Data loss	DE	45%	1	
Handling sensitive information	DE	40%	2	
Delayed software development due to lack of resources	DE	20%	3	
Inaccurate tax calculations leading to legal and financial consequences	DE	50%	1	
Data integrity issues due to modifications in software	PS	30%	2	
Slow response due to large software	PS	60%	4	
Maintenance and upgrade difficulties of large software	PS	50%	3	
Cost overrun due to ineffective communication with customer	CU	10%	3	
Insufficient user training resulting in user errors	CU	40%	3	
Miscalculation of taxes	CU	10%	1	
Data breach for the software	TE	30%	1	
Data loss due to hardware or software failure	TE	10%	1	
Failure to meet tax filling deadlines due to software issues	TE	20%	3	
Increased technical debt due to constraints imposed by management	BU	10%	4	
Lack of stake holders	BU	30%	2	
Integration issues with third party systems	BU	70%	3	
Inadequate software testing leading to incorrect tax assessment	ST	40%	2	
Inadequate communication leading to misunderstanding	ST	40%	3	
Sudden change of team leading to confusions and conflicts	ST	20%	2	
Poor software quality that does not meet the user's needs	PR	30%	2	
Budget overrun due to unforeseen expenses	PR	70%	3	
Lack of consistency of the development organization to meet regulatory or compliance requirements	PR	10%	3	

Impact values:

1- Catastrophic
2- Critical
3- Marginal
4- Negligible