American International University-Bangladesh (AIUB)

Faculty of Science and Technology (FST)
Department of Computer Science & Engineering (CSE)

SDPM Group Project, Spring 2023

Project Title: E-Sports Organization Management System
Section: [D]
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<u>**Submitted by**</u>

Name	ID
Md. Ruhul Quddus Sowmik	18-36772-1
Tahmid Mostaque Talha	18-37162-1
Aditi Bhattacharjee Tumpa	19-41693-3
Iqbal Asif	20-43187-1

1.0   Introduction:

Our software is for the e-Sports player, different types of organizations, and, sponsorship. Every e-sports player will use this software as a user. They will register their team and they will select their preferable game. The organization will post the tournaments. Players will register the team's team for the tournament. There will be a looking for organization section. Any team who needs sponsorship can apply for sponsorship.

2.0 Project Title: e-Sports Organization Management System

3.0 Objectives:

I.   User management
   - Sign-up and login functionality for players, coaches, managers, and admin.
   - User profiles that include basic information like name, email ail, and contact details.
   - Role-based access control to ensure that users only have access to the appropriate features and data.

II.   Team Management
   - Create and manage tournaments with different formats such as round-robin, double-elimination
   - Registration and team selection for tournaments
   - Live score tracking and streaming integration for viewers

III.   Finance management
   - Payment processing for registration fees, prize money, and sponsorships
   - Budget management and financial reporting
   - Integration with accounting software for bookkeeping and tax purposes

4.0 Justification:

Players can easily use this system for tournaments. They don't need to check for tournaments. They will automatically get news for their selected games. Overall, this whole system is easy to access.

5.0 Systems Overview: (Includes Use case diagram)
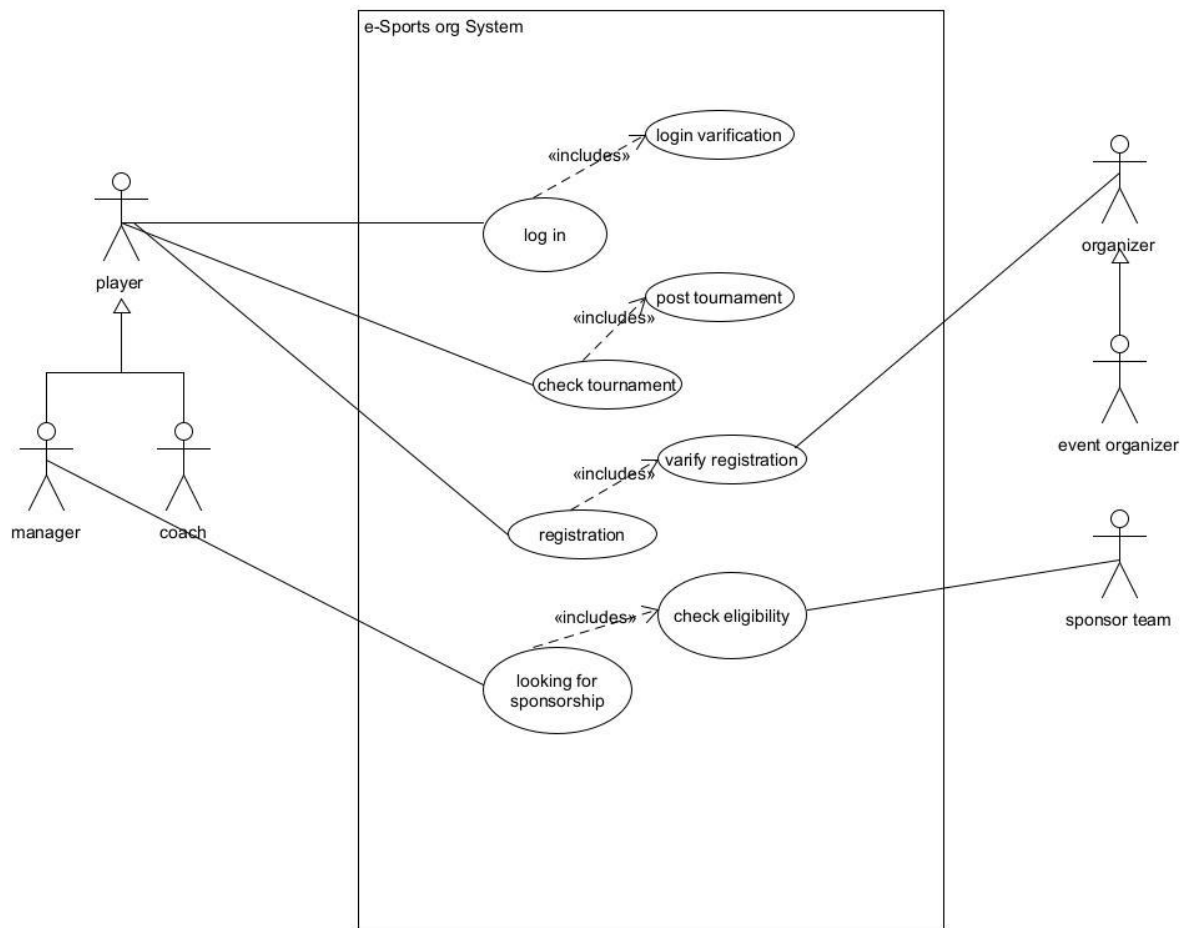
6.0 Stakeholders analysis:

<u>E-sports organization owners:</u> The owners of the e-sports organization will be the primary stakeholders as they will be using the system to manage their organization's various teams, tournaments, and events.

<u>Players:</u> Players are also important stakeholders as they will be using the system to view upcoming tournaments, register for them, and check the progress of their teams.

<u>Coaches:</u> Coaches will be able to use the system to view their team's performance data and make adjustments to their game strategies accordingly.

<u>Managers:</u> Managers will be able to use the system to manage their team's schedule, travel arrangements, and other logistical details.

<u>Sponsors:</u> Sponsors of the e-sports organization will be interested in the system's ability to display their branding and measure the success of their sponsorships.

<u>Viewers:</u> Viewers will be able to use the system to view upcoming tournaments and live streaming of e-sports matches.

<u>Event organizers:</u> Event organizers will be able to use the system to schedule and promote fan events and meetups.

<u>Financers:</u> Financers may include investors or lenders, who will be interested in the financial reports generated by the system, as well as potential revenue streams such as registration fees, sponsorships, and merchandise sales.

7.0 Feasibility study:

7.1 Technical Feasibility:

The Project is all about the sports. The users are mainly using the software as solving their playing issues.

Players, Coaches, organizers, manager they all are will use the system and generates earning mainly organizer/organizers who will pay against all the team and that is the main earning source of this software. And organizer manage the pay from the organization. Basically, all the teams and coach will play for the organization by being different-different team through the system and the system will be benefitted from the functionality.

7.2 Financial Feasibility:

The project will generally decrease the hassle of manual processing and also reduces the delay. So, there are a big amount of people who will pay that extra service charge to eradicate many hassles. That increases the chance of earning consistent profit through this business investment.

Development cost	BDT 7'00000
Tester	BDT 3'00000
Project Manager	BDT 2'00000
Project Co-Ordinator	BDT 1'50'000
Consultant	BDT 1'00000
Others	BDT 1'00000
Total Cost	BDT 15'50'000

Total cost of the project with profit included BDT 18'00000

As the project costs which are really well within the reach to achieve a good significant amount of profit from the project. So, this can be stated that the project in financially feasible.

Since, comparing with the bank interest rate –

The local bank offers 5% interest rate with profit.
So, the profile from BDT 15'50'000 investment will be –
    15'50'000*5% = 77'500 BDT (yearly profit)

Then the profit for 14 months (project duration) would be –
    (77'500/12) * 14 = 90,416.67 = ~ 90,416 BDT

8.0 Systems component:

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                        ┌──────────────┐
                        │ Main System  │
                        └──────────────┘
          ┌──────────────┐        ┌──────────────────┐
          │Project Manager│──────▶│Functional Manager│
          └──────────────┘        └──────────────────┘

   ┌────┐   ┌────────┐   ┌────┐   ┌─────────┐
   │ IT │   │Accounts│   │ HR │   │Marketing│
   └────┘   └────────┘   └────┘   └─────────┘

 ┌──────────┐  ┌───────────┐   ┌──────┐   ┌─────────────────┐
 │Developers│  │  Manage   │   │Survey│   │    Applying     │
 └──────────┘  │  System   │   └──────┘   │ Marketing Policy│
               │ Monetary  │              └─────────────────┘
 ┌──────────────┐│Measurements│
 │SQA Engineers │└───────────┘
 └──────────────┘

 ┌───────────────┐
 │Database Expert│
 └───────────────┘

 ┌──────────┐
 │Algo Expert│
 └──────────┘
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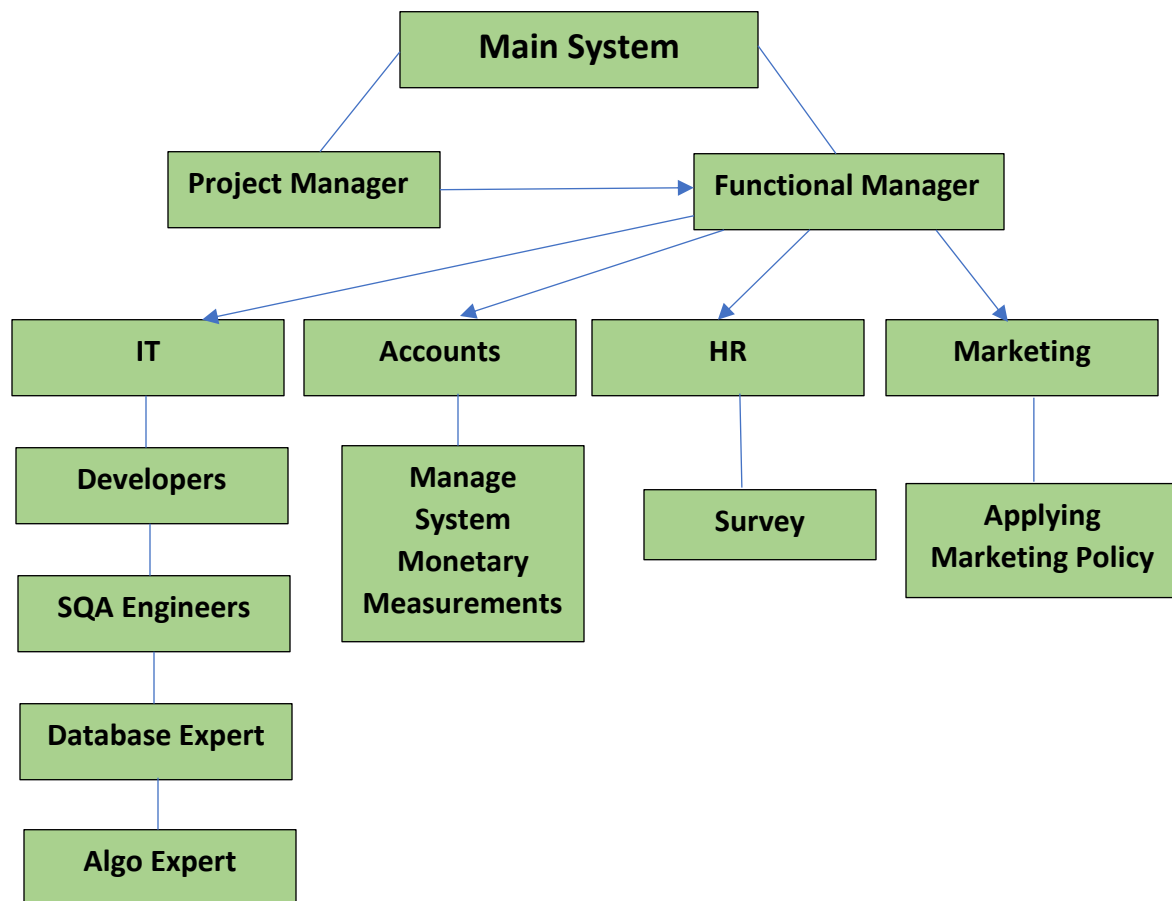
Figure: Breakdown System Components

9.0 Process Model:

The iterative development model was selected for the development of this project. It was done for some of the reasons. The iterative development model develops a system through a building small part of all the features. This helps to meet initial scope quickly and release it for feedback. In the iterative model, it's starting off by implementing a small set of software requirements. These are then enhanced iteratively in the evolving versions until the system has been completed. This process model starts with part of software, which is then implemented and reviewed to identify further requirements.
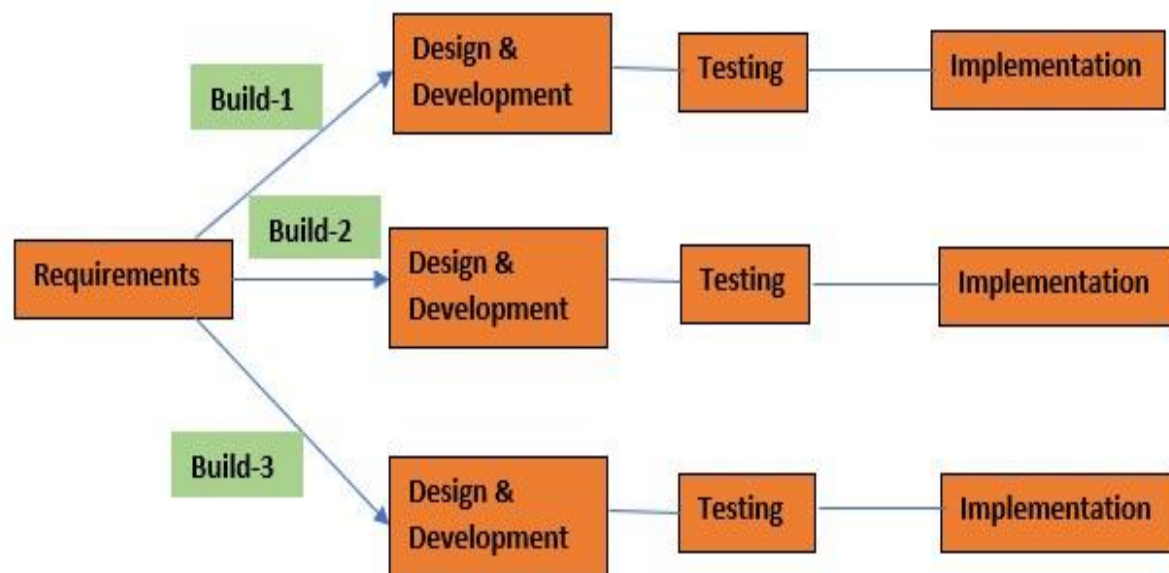

figure: Illustrating the structure of the iterative process model

There have many advantages of the process model:
1. See the results at the early stage of the development
2. A chance to get early feedback from user perspective
3. Easy to identify and fix any functional problem
4. Manage risk and chance requirements
5. Easier to handle large complex type of project
6. Easily break down the large size software into small modules that is really very helpful because that are easier to build and manage

10.0 Efforts estimation:

COCOMO (Constructive Cost Model) is used to estimate the effort for our project cost calculation.

If we consider the project is organic:

Then, Coefficient factor<Effort factor> = 2.4

Let's consider SLOC (Source line of coding) = 30'000

For organic project, the value of P (Project Complexity) = 1.05

The value of T (SLOC -dependent coefficient) = 0.38

So, Effort = PM = Coefficient*(SLOC/1000) ^P

PM (Persons-months needed for this project) –

$\qquad$ = 2.4 (30'000/1000) ^1.05

$\qquad$ = 89.165

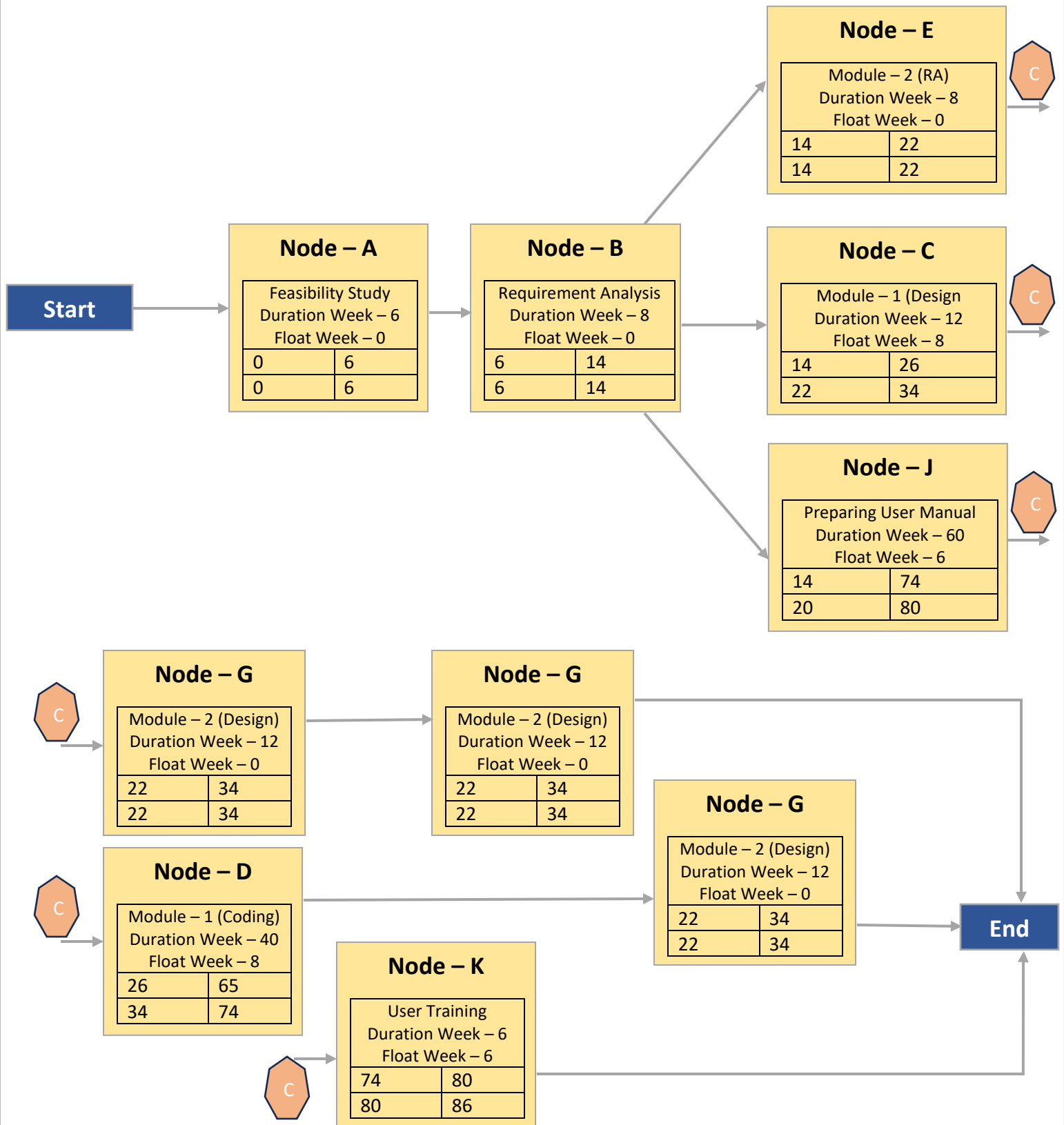
DM (Duration time in month for Project)

= 2.4 * (89.165) ^ 0.38

= 13.221

So, from the calculation we can also calculate the require number of people –

PM/DM = 89.165/13.221 = 6.7 ~ 7

So, approximately this project contains 7 people easily.

11.0 Activity Network Diagram:

Node – E

Module – 2 (RA) Duration Week – 8 Float Week – 0	
14	22
14	22

Node – A

Feasibility Study Duration Week – 6 Float Week – 0	
0	6
0	6

Node – B

Requirement Analysis Duration Week – 8 Float Week – 0	
6	14
6	14

Node – C

Module – 1 (Design Duration Week – 12 Float Week – 8	
14	26
22	34

Node – J

Preparing User Manual Duration Week – 60 Float Week – 6	
14	74
20	80

Start

Node – G

Module – 2 (Design) Duration Week – 12 Float Week – 0	
22	34
22	34

Node – G

Module – 2 (Design) Duration Week – 12 Float Week – 0	
22	34
22	34

Node – G

Module – 2 (Design) Duration Week – 12 Float Week – 0	
22	34
22	34

Node – D

Module – 1 (Coding) Duration Week – 40 Float Week – 8	
26	65
34	74

Node – K

User Training Duration Week – 6 Float Week – 6	
74	80
80	86

End

12.0 Risk Analysis:

- Not to finish the project in time
- If time increase, cost will increase
- Project failure chance will increase
- User may reject the project, or not satisfy
- Extra cost may unstable the project
- Extra cost carrying issue may be occur complex problem
- Project backup person is an issue. If a developer left the project, then less people may more pressure on the project. Project will be slow; time will be unstable.