Batch: B4          Roll No.:   1711126,27,28

Experiment / assignment / tutorial No. 9

Grade: AA / AB / BB / BC / CC / CD /DD

Signature of the Staff In-charge with date

**Title:** Project Summary - Summary of Project and lessons learned

**Topic:** Smart agriculture management system PARVAAH

**Group Members:** 1711126 Ravishankar Yadav

1711127 Harshil Patel

1711128 Deep Shah

**Objective:** To write Project Summary

**Expected Outcome of Experiment:**

| Course Outcome | After successful  completion of the course students should be able to |
|---|---|
| CO1 | Provide an overview of software project management and the project planning. |

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**Books/ Journals/ Websites referred:**

**K. J. Somaiya College of Engineering, Mumbai-77**
**(Autonomous College Affiliated to University of Mumbai)**

1. *Bob Hughes, Mike Cotterell, Rajib Mall,"Software Project Management", fifth Edition, Tata McGraw Hill, Special Indian Edition*
2. *Royce, "Software Project Management", Pearson Education, 1999.*
3. *Project Management Institute: "A Guide to the Project Management Body of Knowledge (PMBOK Guide)" 5th Edition Project Management Institute.*
4. *John Nicholas, Herman Steyn, "Project Management for Business Engineering and Technology" 4th Edition.*

**Work-out:**

**Students are required to draft Project Summary of their respective project which will include Project Scope, Project Breakdown, Project Network, Resource Allocation & utilization, risks etc. This is for their final year project**

**Table of contents:**

**Project Summary for: *Smart agriculture management system PARVAAH***

**1.Overview**

AgroTech Inc is a Smart Agricultural solutions company. We seek to award a contract for the design, fabrication, installation and test of a smart agricultural system for farmers. The system called PARVAAH will be tested in over 100 agricultural lands varied in different states of India. The Project AgroTech is one of the projects of the National e- Governance Plan of the Government of India. It is being run under the direction of the Department of Agriculture and Cooperation. It aims to replicate the agricultural e- governance projects being carried in different states at a national level and provides the services through multiple delivery channels such as the centralized agricultural portal, touch screens, and mobiles.

## 2.Scope

This project stresses on using IT in all stages of the agricultural crop cycle including the crop selection stage, the pre- cultivation stage, the crop management stage, the pre-harvest stage, the harvesting stage and the post-harvest stage. The project focuses on providing informational services to farmers on a variety of farm-related issues including seeds, soil-test-based information, fertilizers, pests, government schemes, and weather. We are going to make use of Machine Learning and Neural Network technologies in order to implement the application so that it becomes easy for the farmers to actually make use of it.

## 3.Breakdown

| Tasks | Activity | Description | Immediate Predecessor | Duration (Weeks) |
|---|---|---|---|---|
| **Task 1 Information Gathering** | A | Identifying the scope | - | 1 |
| | B | Previous Literature Review | A | 2 |
| | C | In depth Analysis of project | B | 4 |
| | D | Stakeholder Interviews | C | 3 |

| | | | | |
|---|---|---|---|---|
| | E | Taking Reviews from farmers | C | 3 |
| **Task 2 Planning** | F | Sketch of the Data Collected | D,E | 1 |
| | G | Workflow Model | F | 2 |
| | H | Collecting Data from various Departments | A | 4-6 |
| | I | Getting Statistical Insights of Crops & Farmers | H | 2-3 |
| **Task 3** | J | Making Algorithms for the System | G,I | 2 |
| | K | Training of the System | J | 4-8 |

| | | | | |
|---|---|---|---|---|
| **Designing of the System** | L | Database allocation for the System | G,I | 4 |
| | M | UI/UX Design | E | 2-3 |
| | N | Integration | L,M | 4-5 |
| **Task 4 Beta Testing & Deployment** | O | Testing the System for Initial Fixes | N | 2 |
| | P | Deployment of Beta System | O | 1-2 |
| | Q | Consolidation of User Review | P | 2 |
| | R | Expert Review | P | 1 |
| **Task 5 Final Deployment** | S | Training the Farmers | Q,R | 4 |
| | T | Bug Fixes | Q,R | 2 |
| | U | Final Version of the System | T | 1 |

| Task 6 Maintenance | V | Maintenance of the System | U | 20 |
|---|---|---|---|---|

# Resources

In order for your sponsor to approve the Project Proposal, they will want to have an understanding of the amount of resources required to undertake it. Complete the following table which sets out the generic resources including people, equipment and materials needed to undertake the project. These are only generic figures to give the Project Sponsor an idea of the level of resourcing required to finish the project.

**Employees**: 50(they will be distributed with the task of research, development, testing, validation, deployment)
**Computers**: 45(for the various employees)
**Flutter Software**: 45(for all the various computers to support the applications.)

## Budget = 9,50,450 INR

| | |
|---|---|
| 2,00,000 | Research, development, equipment |
| 5,00,000 | Employee Wages |
| 1,00,000 | Testing and Validation |
| 1,00,000 | Deployment and Logistical Support |
| 50,450 | Maintenance |

# Requirements

A. Dart Language
B. Java for Android
C. Swift for iOS
D. Flutter for Hybrid
E. Understanding of OOP (Object Oriented Programming).
F. Server side programming experience

G. Firebase as Database
H. Able to turn design mock-ups into great looking sites with user interactions
I. Up-to- date with cross-platform issues, have a good eye for detail and be able to work to tight deadlines

# Ownership

Project Sponsor: This is the person responsible for the delivery of the project. The Project Manager will report correctly to them. = Harshil Patel - 9167191517
Customer: This is the person who will take ownership of the deliverables once the project is complete. This is also usually the person paying for the project. = Deep Shah - 9699102980
Project Manager: If the Project Manager is known at this time, then please add them to the following table. However often at this stage, a Project Manager may not be appointed until the document is approved. = Ravishankar Yadav = 8855996140

**4.Network Diagram**

**AOA diagram:**

Activity I follow Activity B and precedes Activity Q.
• Activity B1 precedes Activity P and follows the completion of Activities Q , K2 , and  E.
• Activity R follows the completion of Activity B.
• Activity S2 follows Activities R and S1, and precedes Activity P.
• Activity K3 is preceded by Activities X , L , and Z, and followed by Activities G and F.
• Activity E2 precedes Activities A1 , X , L , and Z.
• Activity B can start when Activities A1 and X are completed.
• The predecessors to Activity S1 are Activities E , G , and F.
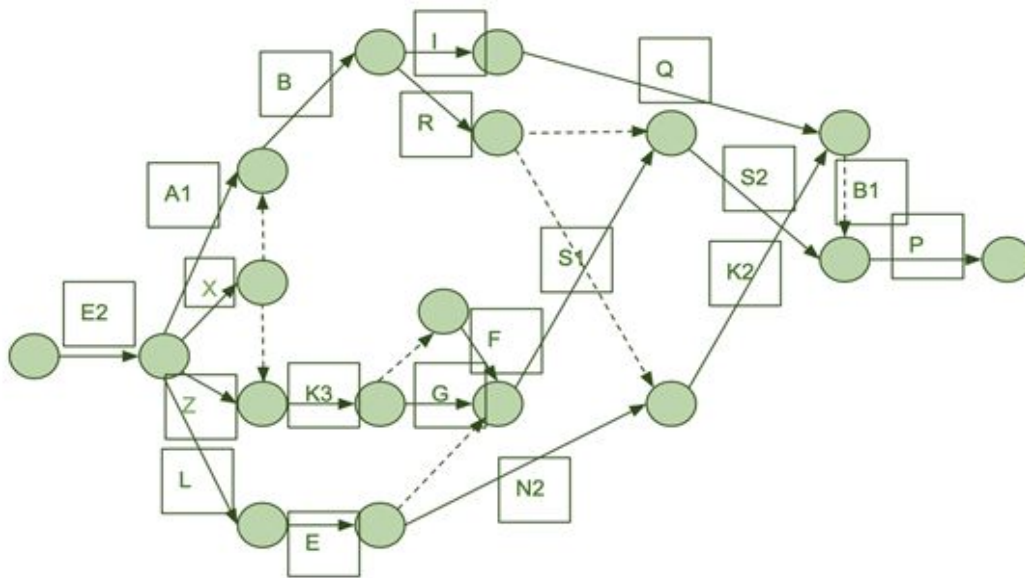• Activity E depends on Activity L and E2 and precedes Activities N2, S1 , and K2.
• Activity K2 follows Activities N2 , R , and L.
• Activity P depends on Activities R and N2.
• Activity S2 depends on Activities X, F, and E2.

## AON diagram:

- In the below AON diagram, activities E, H and I are related to gathering of information and hence have been shown in white tile.
- "START" has been shown with activity A which is: identifying the scope
- "END" has been shown with activity V which is: maintenance of system
- Flow of activities has been shown using arrows and interlinking and parallelism between activities is shown with long arrows
- The flow of the entire AON diagram is : Start-A-B-C-D-F-G-L-N-O-P-R-T-U-V-Finish
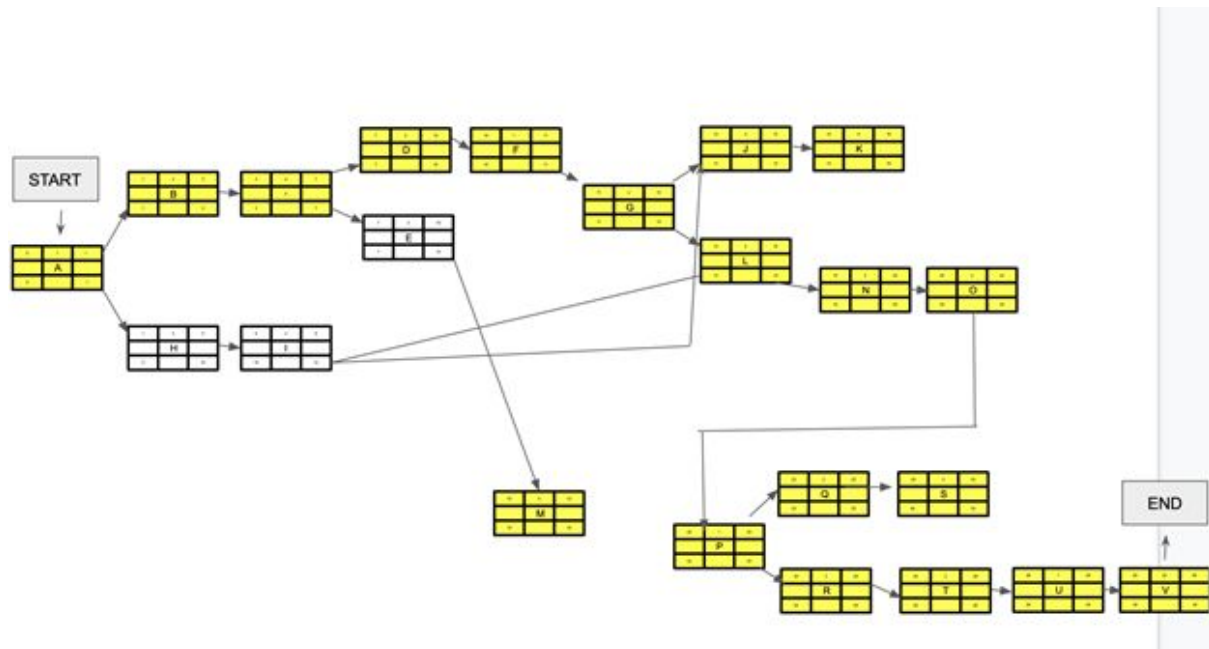
**Critical path - 49 weeks**

**(Start-A-B-C-D-F-G-L-N-O-P-R-T-U-V-Finish)**

**Parallel activities:**

B-H

D-E

J-L

K-N

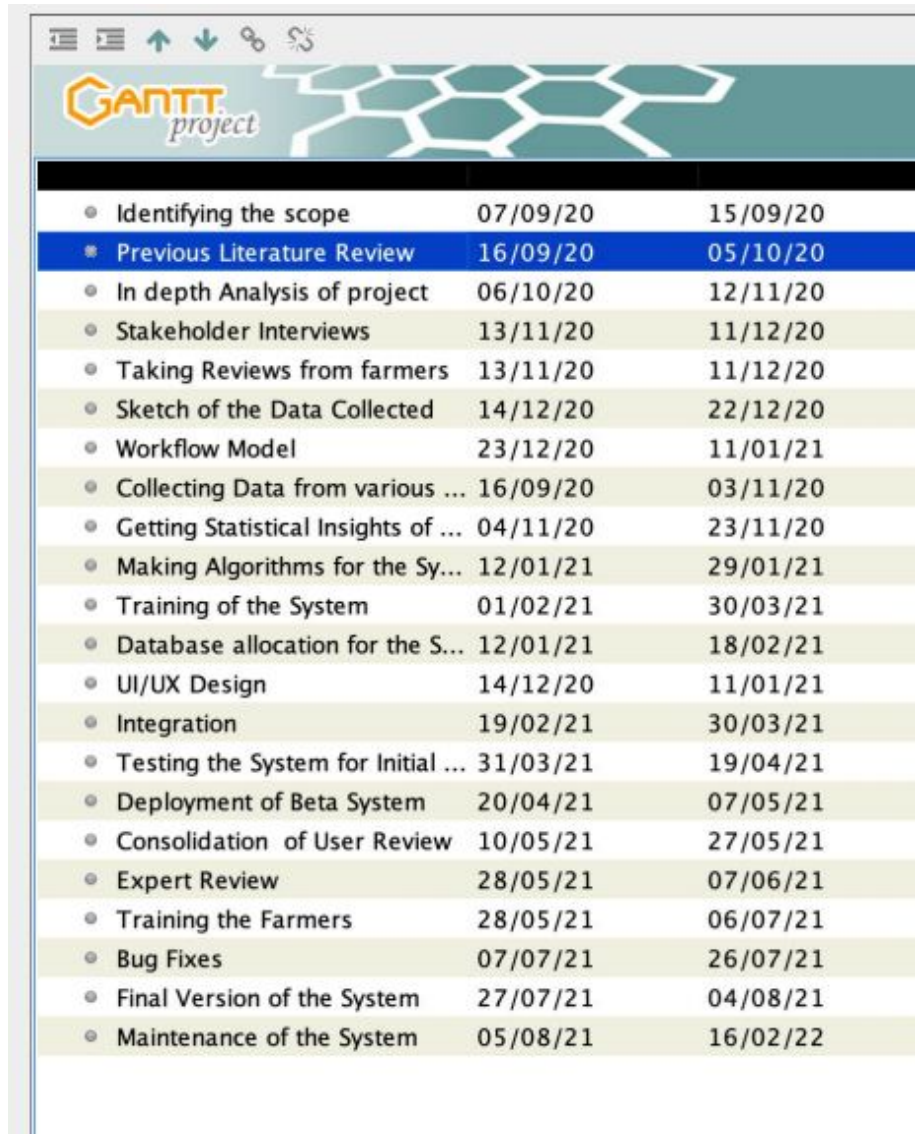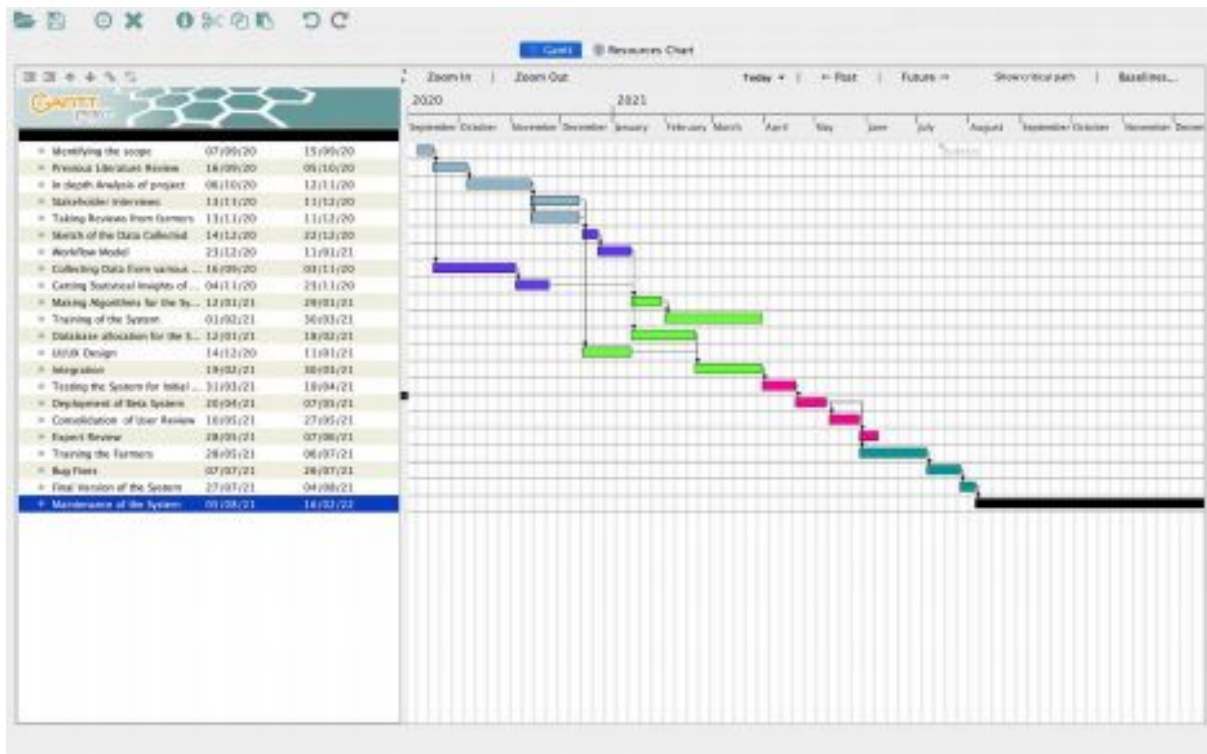O-R

S-T

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**5.Gantt chart**



| Identifying the scope | 07/09/20 | 15/09/20 |
| Previous Literature Review | 16/09/20 | 05/10/20 |
| In depth Analysis of project | 06/10/20 | 12/11/20 |
| Stakeholder Interviews | 13/11/20 | 11/12/20 |
| Taking Reviews from farmers | 13/11/20 | 11/12/20 |
| Sketch of the Data Collected | 14/12/20 | 22/12/20 |
| Workflow Model | 23/12/20 | 11/01/21 |
| Collecting Data from various ... | 16/09/20 | 03/11/20 |
| Getting Statistical Insights of ... | 04/11/20 | 23/11/20 |
| Making Algorithms for the Sy... | 12/01/21 | 29/01/21 |
| Training of the System | 01/02/21 | 30/03/21 |
| Database allocation for the S... | 12/01/21 | 18/02/21 |
| UI/UX Design | 14/12/20 | 11/01/21 |
| Integration | 19/02/21 | 30/03/21 |
| Testing the System for Initial ... | 31/03/21 | 19/04/21 |
| Deployment of Beta System | 20/04/21 | 07/05/21 |
| Consolidation of User Review | 10/05/21 | 27/05/21 |
| Expert Review | 28/05/21 | 07/06/21 |
| Training the Farmers | 28/05/21 | 06/07/21 |
| Bug Fixes | 07/07/21 | 26/07/21 |
| Final Version of the System | 27/07/21 | 04/08/21 |
| Maintenance of the System | 05/08/21 | 16/02/22 |

**6.EF,ES,LS,LF chart**

| Activity | Immediate Predecessor | Duration (Weeks) | Early Start | Early Finish | Late Start | Late Finish |
|----------|----------------------|-------------------|-------------|--------------|------------|-------------|
| A | - | 1 | 0 | 1 | 0 | 1 |
| B | A | 2 | 1 | 3 | 1 | 3 |
| C | B | 4 | 3 | 7 | 3 | 7 |
| D | C | 3 | 7 | 10 | 7 | 10 |
| E | C | 3 | 7 | 10 | 7 | 10 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| **F** | **D,E** | **1** | **10** | **11** | **10** | **11** |
| **G** | **F** | **2** | **11** | **13** | **11** | **13** |
| **H** | **A** | **4-6** | **1** | **6** | **5** | **10** |
| **I** | **H** | **2-3** | **6** | **8** | **10** | **12** |
| **J** | **G,I** | **2** | **12** | **14** | **12** | **14** |
| **K** | **J** | **4-8** | **12** | **18** | **12** | **18** |
| **L** | **G,I** | **4** | **12** | **22** | **12** | **22** |
| **M** | **E** | **2-3** | **10** | **12** | **10** | **12** |
| **N** | **L,M** | **4-5** | **10** | **14** | **16** | **20** |
| **O** | **N** | **2** | **20** | **22** | **20** | **22** |
| **P** | **O** | **1-2** | **22** | **23** | **22** | **23** |
| **Q** | **P** | **2** | **23** | **25** | **23** | **25** |
| **R** | **P** | **1** | **23** | **24** | **23** | **24** |
| **S** | **Q,R** | **4** | **26** | **30** | **26** | **30** |
| **T** | **Q,R** | **2** | **26** | **28** | **26** | **28** |

| U | T | 1 | 28 | 29 | 28 | 29 |
|---|---|---|----|----|----|----|
| V | U | 20 | 29 | 49 | 49 | 49 |

## 6.Cash Flow and Payback

|  | **Smart Agriculture Project** |
|---|---|
| Initial Investment | 9,50,450 INR |
| **Projected Cash Flow** |  |
| Year 1 | 2,45,000 INR |
| Year 2 | 3,20,000 INR |
| Year 3 | 2,95,000 INR |
| Year 4 | 3,60,000 INR |

**Payback Period**

(PaybackYear=Year before total cash flow became positive + (remaining amount/ cash flow of year when cash flow became positive))

| Year | Cash Flow(INR) | Cumulative |
|------|----------------|------------|
| 0 | -9,50,450 | -9,50,450 |
| 1 | 2,45,000 | -7,05,450 |
| 2 | 3,20,000 | -3,85,450 |

| | | |
|---|---|---|
| 3 | 2,95,000 | -90,450 |
| 4 | 3,60,000 | +2,69,550 |

**Payback Period** = **3.25 years**

## 7.Risk Analysis

**Insufficient Resources and information:**
Our Project PARVAAH will help and give appropriate suggestions to farmers to plan their activities based on the weather over the next few weeks or months. As weather cannot be predicted precisely, there are possibilities that the performance of the system in terms of correctness may fail
Also, insufficient knowledge of farming and crops is also a risk that needs to be handled carefully.

● **Software - Hardware risks**
As the project is of longer duration, it may happen that when we start the project, the technology we use for developing our project may deplete or any new technology may come which will be more easy to design the system and give better results and performance of the system
There may be some issues while integrating the modules.
It may happen that the database designed and the frontend developed for the system may have some issues while integrating.Also, the technologies used for the project may become deplete.

● **Continuous changing requirements**
As we all know that, every now and then, there are developments in
the field of agriculture, so there are risks that we developed the
system for a field which may become obsolete after a few months
down the lane

● **Insufficient Funds:**
Due to insufficient funds allocated to the project, the project may fail.
As the project PARVAAH requires the technologies that are up to date, it may happen that the tools and systems purchased during the project initiation may need to be replaced when the project is completed.Hence, constant funding is needed for the maintenance of the project.

| Activity | Optimisitic (a) | Most likely (m) | Pessimistic(b) | Expected date | Activity SD |
|---|---|---|---|---|---|
| 1A Identifying the scope | 1 | 1 | 1 | 1 | 0 |
| 1B Previous literature review | 2 | 2 | 2 | 2 | 0 |
| 1C In-depth project analysis | 4 | 4 | 4 | 4 | 0 |
| 1D Stakeholder reviews | 3 | 3 | 3 | 3 | 0 |
| 1E Taking reviews from farmers | 3 | 3 | 3 | 3 | 0 |
| 2F Sketch of data collected | 1 | 1 | 1 | 1 | 0 |
| 2G Workflow model | 2 | 2 | 2 | 2 | 0 |
| 2H Colleting data from depts. | 3 | 5 | 5 | 4.666666667 | 0.3333333333 |
| 2I Statistical insight of crops & farmers | 2 | 3 | 3 | 2.833333333 | 0.1666666667 |
| 3J Making Algos. For system | 2 | 2 | 2 | 2 | 0 |
| 3K Training of system | 2 | 6 | 6 | 5.333333333 | 0.6666666667 |
| 3L DB allocation of system | 4 | 5 | 5 | 4.833333333 | 0.1666666667 |
| 3M UI/UX design | 3 | 4 | 4 | 3.833333333 | 0.1666666667 |
| 3N Integration | 2 | 5 | 5 | 4.5 | 0.5 |
| 4O Testing system for fixes | 2 | 2 | 2 | 2 | 0 |
| 4P deployment of beta system | 2 | 2 | 2 | 2 | 0 |
| 4Q Consolidation of user review | 1 | 2 | 2 | 1.833333333 | 0.1666666667 |
| 4R Expert Review | 1 | 1 | 2 | 1.166666667 | 0.1666666667 |
| 5S Training the farmers | 4 | 4 | 4 | 4 | 0 |
| 5T Bug fixes | 2 | 2 | 2 | 2 | 0 |
| 5U Final version of system | 1 | 1 | 1 | 1 | 0 |
| 6V Maintenance of system | 18 | 19 | 20 | 19 | 0.3333333333 |

## Conclusion:

**Hence, we have developed a project summary for our topic based on concepts learned in software project management.**