ASSIGNMENT 1 FRONT SHEET

Qualification	BTEC Level 5 HND Diploma in Computing		
Unit number and title	Unit 06: Managing a Successful Computing Project		
Submission date	24/10/2023	Date Received 1st submission	
Re-submission Date		Date Received 2nd submission	
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Class	GCS1005A	Assessor name	Ngo Quoc Anh

Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

	Student's signature	

Grading grid

P1	P2	P3	P4	M1	M2	D1

❒ **Summative Feedback:**	❒ **Resubmission Feedback:**

Grade:	**Assessor Signature:**	**Date:**

IV Signature:

Unit 06: Planning a Computing Project

Assignment Brief 1

Unit Number and Title	Unit 06: Planning a Computing Project
Academic Year	2023 - 2024
Unit Tutor	Nguyen The Lam Tung
Assignment Title	**Plan and conduct a small scale research activity**
Issue Date	01 September 2023
Submission Date	01 August 2023

Submission Format	
Format	The submission is in the form of an individual written report that shows how you have manage the project. This should be written in a concise, formal business style using single spacing and font size 12. You are required to make use of headings, paragraphs and subsections as appropriate, and all work must be supported with research and referenced using the Harvard referencing system. Please also provide a bibliography using the Harvard referencing system.
Submission	Students are compulsory to submit the assignment in due date and in a way requested by the Tutors. The form of submission will be a soft copy in PDF posted on corresponding course of http://cms.greenwich.edu.vn/
Note	The Assignment must be your own work, and not copied by or from another student or from books etc. If you use ideas, quotes or data (such as diagrams) from books, journals or other sources, you must reference your sources, using the Harvard style. Make sure that you know how to reference properly, and that understand the guidelines on plagiarism. *If you do not, you definitely get fail*.

Unit Learning Outcomes
LO1: Establish project aims, objectives and timeframes based on the chosen theme.
LO2: Conduct small-scale research, information gathering and data collection to generate knowledge to support the project.

Transferable skills and competencies developed
The assignment offers students the chance to explore various aspects of big data from the perspective of computing professionals or data scientists. It also encourages

investigations into the applications, benefits, limitations, and responsibilities associated with big data and provides solutions to the problems it aims to solve.

Vocational scenario

Introduction to theme

Application of Big Data and IoT/AI to potential future developments

Over the past decade, the term "big data" has gained increasing popularity. Initially, it referred to data generated in massive volumes, such as internet search queries, weather sensor data, and social media information. Nowadays, big data represents large amounts of information from diverse sources that cannot be processed conventionally or without computational intervention. Big data can be stored in structured, unstructured, or semi-structured formats. Many systems and organizations generate massive quantities of big data on a daily basis, some of which are publicly available for analysis. Consequently, machine learning systems have been developed to sift through this data, rapidly identify patterns, and solve problems. This has led to the emergence of data science analytics as a discipline to design, build, and test machine learning and artificial intelligence systems. Leveraging big data requires a broad range of knowledge and skills, creating new opportunities for previously inaccessible organizations. It allows businesses to gain a comprehensive understanding of global trends, enabling more accurate and up-to-date decision-making. Big data can help identify potential business risks earlier and minimize costs without compromising innovation. However, the rapid application of big data raises concerns about security, the ethical storage of personal data from multiple sources, and the sustainability of energy requirements in large data warehouses.

Task

As a member of Research and Development department, you have been assigned a mini-project to find out the application of Big Data and IoT/AI to potential future developments e.g. automated manufacturing, medicine and healthcare, virtual worlds, scientific research, etc.

Assignment activity and guidance

You need to do primary research (both qualitative and quantitative research) and secondary research to find out that impact and conduct a report for your research. Even it's a mini-project, you must apply project management (PM) techniques such as project charter with aims, objectives, cost etc. As for time management, you need to produce WBS and Gantt chart with reasonable tasks and time. A project logbook is required to provide evidence of the project development process and ongoing reflection for every week. This logbook will be needed later for your reflection and evaluation in Assignment 2. As part of QA (quality assurance) policy, in the report you also need to critically evaluate the PM process and appropriate research methodologies applied.

Your report must have an introduction stating the project aims and objectives. This must be followed by a copy of your project management plan. Your plan should show

the milestones when you will review with your tutor your ongoing progress so far. You will submit your logbook which shows how you have carried out the project.

Recommended Resources

1. **Article: 6V's of Big Data** https://www.geeksforgeeks.org/5-vs-of-big-data/

2. **Article: Business Ethics and Big Data**
   https://www.ibe.org.uk/resource/business-ethics-and-big-data.html

3. **Article: What is Big Data Security? Challenges & Solutions**
   https://www.datamation.com/big-data/big-data-security/

4. **Article: What is Big Data?** https://www.oracle.com/uk/big-data/what-is-big-data/

5. **Magazine: Information Sciences**
   https://www.sciencedirect.com/journal/information-sciences

6. **Magazine: Big Data Research** https://www.sciencedirect.com/journal/big-data-research

7. **Report: Big Data & Investment Management: The Potential to Quantify Traditionally Qualitative Factors** https://tinyurl.com/yff4uenz

8. **Webinar: Big Data Sources & Analysis Webinar** https://tinyurl.com/2p85d7mb

9. **Video: Big Data In 5 Minutes|What Is Big Data?|Introduction To Big Data|Big Data Explained** https://www.youtube.com/watch?v=bAyrObl7TYE

10. **Video: Challenges of Securing Big Data**
    https://www.youtube.com/watch?v=3xIuIcPzMVs

11. **Video: The Importance of Data Ethics**
    https://www.youtube.com/watch?v=gLHMhCtxEYE

12. **Book: A Bite-Sized Guide to Visualising Data** https://tinyurl.com/38d6thsk

13. **Book: Business Intelligence Strategy and Big Data Analytics**
    https://www.sciencedirect.com/book/9780128091982/business-intelligence-strategy-and-big-data-analytics

14. **Book: Principles and Practice of Big Data Preparing, Sharing, and Analysing Complex Information**
    https://www.sciencedirect.com/book/9780128156094/principles-and-practice-of-big-data

15. **Book: Systems Simulation and Modelling for Cloud Computing and Big Data Applications** https://tinyurl.com/2s3wkehn

16. **Journal: Big Data in Construction: Current Applications and Future Opportunities** https://www.mdpi.com/2504-2289/6/1/18

17. **Journal: Big Data with Cloud Computing: Discussions and Challenges**
    https://www.sciopen.com/arti cle/pdf/10.26599/BDMA.2021.9020016.pdf

18. Journal: Mobile Big Data Solutions for a Better Future
    https://tinyurl.com/hpk2zvvw

19. Journal: The social implications, risks, challenges and opportunities of big data https://tinyurl.com/yw593svk

20. Journal: Policy discussion – Challenges of big data and analytics driven demand-side management https://tinyurl.com/kyb3j6x7

21. Journal: Explore Big Data Analytics Applications and Opportunities: A Review https://tinyurl.com/597j8nd3

22. Journal: What is Big Data? https://www.oracle.com/cl/a/ocom/docs/what-is-big-data-ebook- 4421383.pdf

23. Journal: Towards felicitous decision making: An overview on challenges and trends of Big Data https://www.sciencedirect.com/science/article/abs/pii/S002 0025516304868

24. Journal: Critical analysis of Big Data challenges and analytical methods https://www.sciencedirect.com/science/article/pii/S014829631630488X

25. Journal: Big Data Security Issues and Challenges https://tinyurl.com/wabx7zya

26. Journal: IoT Big Data Security and Privacy Versus Innovation https://ieeexplore.ieee.org/abstract/document/8643026

27. Journal: Big Data Security and Privacy Protection https://www.atlantis-press.com/proceedings/icmcs-18/25904185

28. Journal: Big data analytics in Cloud computing: an overview https://journalofcloudcomputing.springeropen.com/articles/10.1186/s13677-022-00301-w

Please note that the resources listed are examples for you to use as a starting point in your research – the list is not definitive.

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Establish project aims, objectives and timeframes based on the chosen theme		**LO1 & LO2** **D1** Critically evaluate the project management process and appropriate research methodologies applied.
P1 Devise project aims and objectives for a chosen scenario. **P2** Produce a project management plan that covers aspects of cost, scope, time, quality, communication, risk and resources. **P3** Produce a work breakdown structure and a Gantt Chart to provide timeframes and stages for completion.	**M1** Produce a comprehensive project management plan, milestone schedule and project schedule for monitoring and completing the aims and objectives of the project.	
LO2 Conduct small-scale research, information gathering and data collection to generate knowledge to support the project		
P4 Carry out small-scale research by applying qualitative and quantitative research methods appropriate for meeting project aims and objectives.	**M2** Evaluate the accuracy and reliability of different research methods applied.	

Table of Contents

Unit 6 – Managing a Successful Computing Project

I. Project initialization

1.1. Project Goals & Project Objectives:

Project Goals: Optimize traffic flow and reduce congestion during peak hours in the downtown area by implementing a comprehensive set of data-driven solutions, advanced traffic management technologies, and strategic infrastructure improvements. The aim is to create a seamless and efficient transportation network that minimizes delays, enhances accessibility, and improves the quality of life for individuals traveling through the downtown area. Through collaborative efforts with stakeholders and continuous monitoring, the project seeks to create a sustainable and future-proof traffic system that supports economic growth, enhances safety, and promotes a vibrant urban environment.

Objective: Optimize Traffic System (SMART):

1. Specific: Reduce traffic congestion during peak hours in downtown area.

2. Measurable: Decrease average travel time during peak hours by 20% within six months.

3. Achievable: Implement traffic signal optimization and lane management strategies to achieve the desired reduction in congestion.

4. Relevant: Improve traffic flow to enhance overall transportation efficiency and reduce environmental impact.

5. Time-bound: Reduce traffic congestion by 20% within two years through a phased implementation plan.

1.3. Project Scope:

1. Traffic Data Collection: Implement systems and technologies to collect real-time traffic data, including traffic volume, speed, and congestion levels. This may involve the installation of traffic sensors, cameras, or other data collection devices.

2. Traffic Analysis and Modeling: Analyze the collected traffic data to identify traffic patterns, congestion hotspots, and areas of improvement. Develop traffic models to simulate and predict traffic behavior under different scenarios.

3. Traffic Signal Optimization: Optimize the timings and coordination of traffic signals to improve traffic flow and reduce delays. This may involve adjusting signal timings based on real-time traffic conditions or implementing adaptive signal control systems.

1.4. Estimation of Resources

A. Time table

Task	Detail	Begin date	End date
Data Collection	Install traffic sensors and cameras at key locations	01/11/2023	15/11/2023
Data Analysis	Collect and analyze traffic data to identify patterns	16/11/2023	15/12/2023
Identify Concerns	Identify areas of concern and potential improvement areas	16/12/2023	15/01/2023

B. Cost table

Task	Detail	Prices (USD)	Begin date	End date
Data Collection	Install traffic sensors and cameras at key locations	$50,000	01/11/2023	15/11/2023
Data Analysis	Collect and analyze traffic data to identify patterns	$30,000	16/11/2023	15/12/2023
Identify Concerns	Identify areas of concern and potential improvement areas	$20,000	16/12/2023	15/01/2023
Total		$100,000		

C. HR table

Task	Detail	Number of Personnel	Begin date	End date
Data Collection	Install traffic sensors and cameras at key locations	4	01/11/2023	15/11/2023
Data Analysis	Collect and analyze traffic data to identify patterns	2	16/11/2023	15/12/2023
Identify Concerns	Identify areas of concern and potential improvement areas	3	16/12/2023	15/01/2023

D. Budget table

Task	Detail	Number of Personnel	Prices (USD)	Begin date	End date
Data Collection	Install traffic sensors and cameras at key locations	4	$50,000	01/11/2023	15/11/2023
Data Analysis	Collect and analyze traffic data to identify patterns	2	$30,000	16/11/2023	15/12/2023
Identify Concerns	Identify areas of concern and potential improvement areas	3	$20,000	16/12/2023	15/01/2023
Total	$100,000				

II. Planning

2.1 Activities Planning (WBS)

A. Objectives Break-down Structure (OBS): Develop a Traffic Optimization System

1. Analysis and Planning
1.1 Conduct traffic analysis
1.2 Gather data on traffic patterns and volume
1.3 Identify areas of concern and improvement opportunities
1.4 Analyze existing traffic management systems

**2. System Development**
2.1 Design system architecture
2.2 Develop traffic optimization algorithms
2.3 Implement data collection and integration
2.4 Test and refine system components

3. Deployment and Evaluation
3.1 Install and configure the system
3.2 Conduct system-wide testing
3.3 Evaluate system performance and effectiveness
3.4 Make necessary adjustments and improvements

B. Work Break-down Structure (WBS)
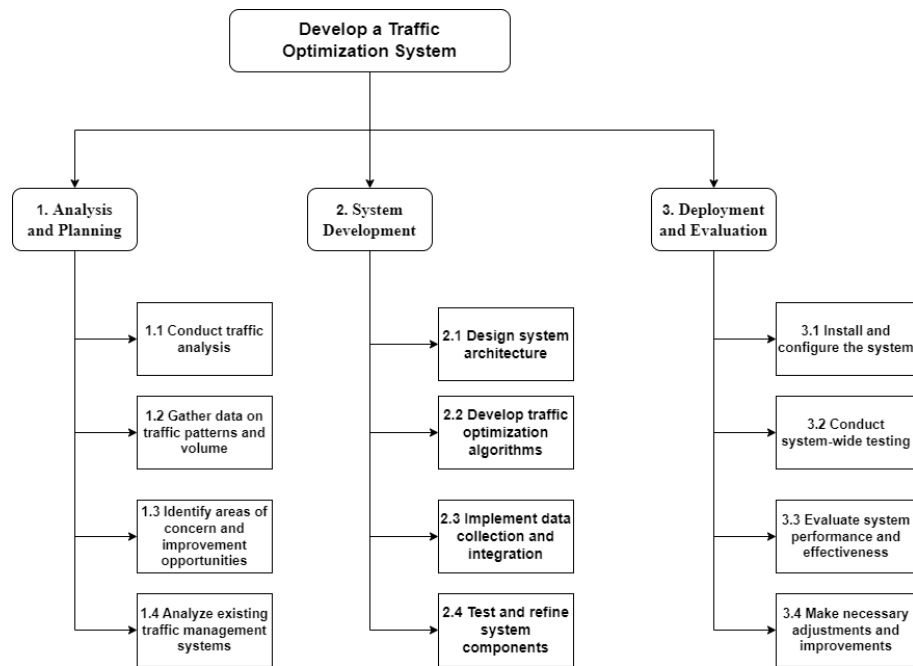
2.2 Time Planning

A. Estimating Time Cost

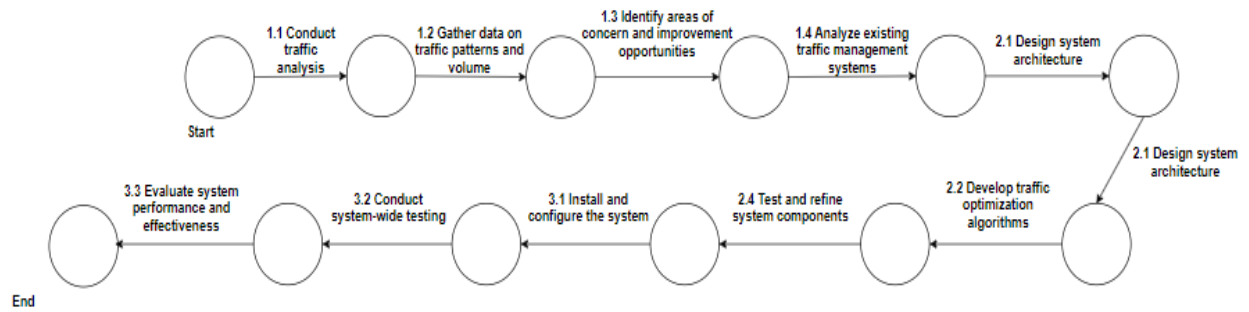| NO.	Level	Activity	Estimate time
1	1.1	Conduct traffic analysis	1 days
2	1.2	Gather data on traffic patterns	2 days
3	1.3	Identify areas of concern	2 days
4	1.4	Analyze existing traffic management	1 days
5	2.1	Design system architecture	2 days
6	2.2	Develop traffic optimization algorithms	1 days
7	2.3	Implement data collection and integration	2 days
8	2.4	Test and refine system components	1 days
9	3.1	Install and configure the system	1 days
10	3.2	Conduct system-wide testing	1 days
11	3.3	Evaluate system performance	1 days
12	3.4	Make necessary adjustments and improvements	1 days

B. Dependency Table

NO.	Level	Activity	Dependency
1	1.1	Conduct traffic analysis	0
2	1.2	Gather data on traffic patterns	1.1 Conduct traffic analysis
3	1.3	Identify areas of concern	1.2 Gather data on traffic patterns and volume
4	1.4	Analyze existing traffic management	1.3 Identify areas of concern and improvement opportunities
5	2.1	Design system architecture	1.4 Analyze existing traffic management systems
6	2.2	Develop traffic optimization algorithms	2.1 Design system architecture
7	2.3	Implement data collection and integration	2.1 Design system architecture
8	2.4	Test and refine system components	2.2 Develop traffic optimization algorithms
9	3.1	Install and configure the system	2.4 Test and refine system components
10	3.2	Conduct system-wide testing	3.1 Install and configure the system
11	3.3	Evaluate system performance	3.2 Conduct system-wide testing
12	3.4	Make necessary adjustments and improvements	3.3 Evaluate system performance and effectiveness

Explain:

_Task 2, System Development, relies on Task 1, Analysis and Planning. The insights and recommendations obtained from the analysis task are essential in guiding the development of actionable plans and designs. By depending on the findings of Task 1, Task 2 ensures a well-informed and targeted approach to optimize traffic flow and reduce congestion in the downtown area.

_Task 3, Deployment and Evaluation, depends on Task 2, System Development. The successful completion of Task 2 is a prerequisite for deploying the planned strategies and infrastructure improvements in Task 3. Furthermore, Task 3 involves evaluating the effectiveness of the implemented solutions. This sequential dependency ensures a systematic and evaluative approach to optimizing the traffic system.
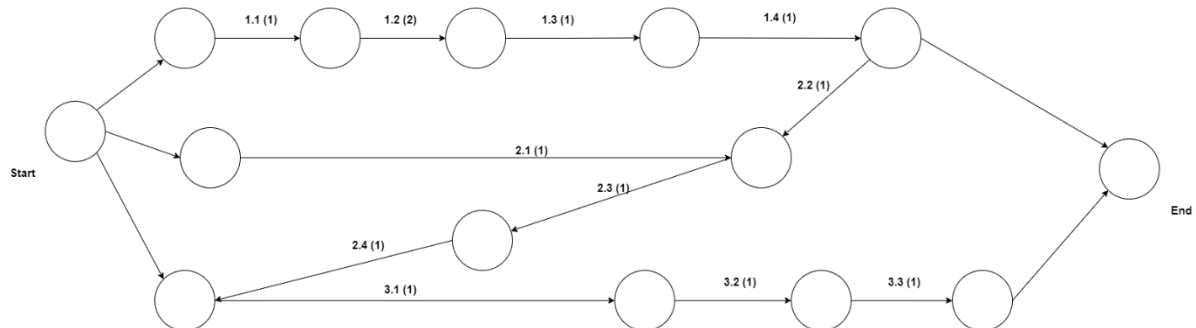
C. Activity-on-Arrow form (AOA)

D. CPM Time Table for Each Actiity

CPM Time Table

NO.	Level	Activity	Estimate Time	Dependencies
1	1.1	Conduct traffic analysis	1 day	-
2	1.2	Gather data on traffic patterns	2 days	1.1
3	1.3	Identify areas of concern	2 days	1.2
4	1.4	Analyze existing traffic management	1 day	1.3
5	2.1	Design system architecture	2 days	1.4
6	2.2	Develop traffic optimization algorithms	1 day	2.1
7	2.3	Implement data collection and integration	2 days	2.1
8	2.4	Test and refine system components	1 day	2.3
9	3.1	Install and configure the system	1 day	2.4
10	3.2	Conduct system-wide testing	1 day	3.1
11	3.3	Evaluate system performance	1 day	3.2
12	3.4	Make necessary adjustments and improvements	1 day	3.3

CPM Diagram

E. Earliest start-time (ES) for each activity:

NO.	Level	Activity	Estimate Time	Dependencies	ES
1	1.1	Conduct traffic analysis	1 day	-	0
2	1.2	Gather data on traffic patterns	2 days	1.1	1
3	1.3	Identify areas of concern	2 days	1.2	3
4	1.4	Analyze existing traffic management	1 day	1.3	5
5	2.1	Design system architecture	2 days	1.4	6
6	2.2	Develop traffic optimization algorithms	1 day	2.1	8
7	2.3	Implement data collection and integration	2 days	2.1	8
8	2.4	Test and refine system components	1 day	2.3	10
9	3.1	Install and configure the system	1 day	2.4	11
10	3.2	Conduct system-wide testing	1 day	3.1	12
11	3.3	Evaluate system performance	1 day	3.2	13
12	3.4	Make necessary adjustments and improvements	1 day	3.3	14

2.3 Resources Planning

A. Material Resource Plan

Conduct traffic analysis: $10,000
Gather data on traffic patterns: $15,000
Identify areas of concern: $3,000
Analyze existing traffic management: $7,000
Design system architecture: $8,000
Develop traffic optimization algorithms: $12,000
Implement data collection and integration: $10,000
Test and refine system components: $5,000
Install and configure the system: $8,000
Conduct system-wide testing: $5,000
Evaluate system performance: $3,000
Make necessary adjustments and improvements: $6,000

Total estimated material cost: $10,000 + $15,000 + $3,000 + $7,000 + $8,000 + $12,000 + $10,000 + $5,000 + $8,000 + $5,000 + $3,000 + $6,000 = $92,000

B. Human Resource Plan

Task: Data Collection
Detail: Install traffic sensors and cameras at key locations
Number of Personnel: 4
Begin date: 01/11/2023
End date: 15/11/2023
Duration: 15 working days (assumes 5 working days per week)

Task: Data Analysis
Detail: Collect and analyze traffic data to identify patterns
Number of Personnel: 2
Begin date: 16/11/2023
End date: 15/12/2023
Duration: 20 working days (assumes 5 working days per week)

Task: Identify Concerns
Detail: Identify areas of concern and potential improvement areas
Number of Personnel: 3
Begin date: 16/12/2023
End date: 15/01/2024
Duration: 20 working days (assumes 5 working days per week)

To estimate the HR cost for each task, we need to multiply the number of personnel by the duration of the task and the daily rate. Let's assume the daily rate is $200.

Task: Data Collection
HR Cost: 4 personnel * 15 working days * $200 daily rate = $12,000

Task: Data Analysis
HR Cost: 2 personnel * 20 working days * $200 daily rate = $8,000

Task: Identify Concerns
HR Cost: 3 personnel * 20 working days * $200 daily rate = $12,000

Total HR Cost: $12,000 + $8,000 + $12,000 = $32,000

C. Cost Plan

Conduct traffic analysis: $10,000
Gather data on traffic patterns: $15,000
Identify areas of concern: $3,000
Analyze existing traffic management: $7,000
Design system architecture: $8,000
Develop traffic optimization algorithms: $12,000
Implement data collection and integration: $10,000
Test and refine system components: $5,000
Install and configure the system: $8,000
Conduct system-wide testing: $5,000
Evaluate system performance: $3,000
Make necessary adjustments and improvements: $6,000

Total estimated material cost: $92,000

Task: Data Collection
Detail: Install traffic sensors and cameras at key locations
Number of Personnel: 4
Begin date: 01/11/2023
End date: 15/11/2023
Duration: 15 working days (assumes 5 working days per week)

Task: Data Analysis
Detail: Collect and analyze traffic data to identify patterns
Number of Personnel: 2
Begin date: 16/11/2023
End date: 15/12/2023
Duration: 20 working days (assumes 5 working days per week)

Task: Identify Concerns
Detail: Identify areas of concern and potential improvement areas
Number of Personnel: 3
Begin date: 16/12/2023

End date: 15/01/2024

Duration: 20 working days (assumes 5 working days per week)

Total HR Cost: $32,000
Total Cost plan: $124,000

D. Budget Plan

Task	Cost (USD)	Management Buffer (10%)	Budget Allocated
Conduct traffic analysis	$10,000	$1,000	$11,000
Gather data on traffic patterns	$15,000	$1,500	$16,500
Identify areas of concern	$3,000	$300	$3,300
Analyze existing traffic management	$7,000	$700	$7,700
Design system architecture	$8,000	$800	$8,800
Develop traffic optimization algorithms	$12,000	$1,200	$13,200
Implement data collection and integration	$10,000	$1,000	$11,000
Test and refine system components	$5,000	$500	$5,500
Install and configure the system	$8,000	$800	$8,800
Conduct system-wide testing	$5,000	$500	$5,500
Evaluate system performance	$3,000	$300	$3,300
Make necessary adjustments and improvements	$6,000	$600	$6,600
Total estimated material cost	$92,000	$9,200	$101,200

2.4 Risk Management Planning

A. Risk Analysis

Risk ID	Risk Description	Likelihood	Impact
R1	Delays in data collection due to external factors	High	High
R2	Insufficient budget allocation	Medium	High
R3	Inadequate expertise in data analysis	Low	Medium

Mitigation Strategy	Risk Probability	Risk Impact Value	Risk Effect
Maintain contingency time, establish alternatives	High	High	High
Regularly monitor and track expenses, prioritize tasks	Medium	High	High
Provide training, hire skilled personnel, collaborate	Low	Medium	Low

Risk R1, delays in data collection due to external factors, both the likelihood and impact are assessed as high, resulting in a high risk probability and high risk impact value. Therefore, the risk effect is calculated as High x High = High.

Risk R2, insufficient budget allocation, the likelihood is estimated as medium, and the impact is assessed as high. Consequently, the risk probability is determined as medium, and the risk impact value is high. The risk effect is calculated as Medium x High = High.

Risk R3, inadequate expertise in data analysis, the likelihood is evaluated as low, and the impact is assessed as medium. Thus, the risk probability is low, and the risk impact value is medium. The risk effect is calculated as Low x Medium = Low.

B. Risk Response Table

Risk ID	Risk Description	Likelihood	Impact	Priority	Risk Response
R1	Delays in data collection due to external factors	High	High	High	Develop alternative data collection methods
R2	Insufficient budget allocation	Medium	High	Medium	Regularly monitor and track expenses
R3	Inadequate expertise in data analysis	Low	Medium	Low	Provide training or hire additional skilled personnel

C. Reactive Plan for each Risk in Risk Table

Risk ID	Risk Description	Risk Response	Risk Monitoring Plan	Reactive Response Plan
R1	Delays in data collection due to external factors	Develop alternative data collection methods	Regularly review data collection progress	Implement alternative methods if delays occur
R2	Insufficient budget allocation	Regularly monitor and track expenses	Conduct regular budget reviews and adjustments	Seek additional funding or reallocate budget resources
R3	Inadequate expertise in data analysis	Provide training or hire additional skilled personnel	Monitor team's skill development	Arrange training sessions or recruit skilled personnel

D. Repeat above Steps

1. Identify the risks relevant to your project.

2. Assign a unique Risk ID to each identified risk.

3. Write a concise Risk Description for each risk, providing a clear understanding of what the risk entails.

4. Determine the appropriate Risk Response for each risk, outlining the action or strategy to address or mitigate the risk.

5. Develop a Risk Monitoring Plan for each risk, specifying the activities and approaches to monitor the risk proactively. This plan should include checkpoints, progress reviews, or indicators to track the risk and identify any changes or potential issues.

6. Create a Reactive Response Plan for each risk, detailing the actions to be taken if the risk materializes or exceeds the acceptable threshold. This plan should specify the steps to mitigate the negative impact of the risk and restore project progress.

7. Arrange the information in a table format, with columns for Risk ID, Risk Description, Risk Response, Risk Monitoring Plan, and Reactive Response Plan.

8. Populate the table with the specific details for each risk, ensuring that each row corresponds to a unique risk.

9. Customize the table further based on your project's needs, including any additional columns or information relevant to your risk management approach.

III.Execution

Analysis and Planning:
_Conduct traffic analysis: Perform an examination of current traffic conditions, congestion points, and bottlenecks.
_Gather data on traffic patterns and volume: Collect relevant data regarding peak hours, traffic volume, and types of vehicles.

System Development:

_Design system architecture: Create a comprehensive plan that outlines the structure, components, and data flow of the traffic management system.
_Develop traffic optimization algorithms: Create algorithms that focus on optimizing traffic flow and reducing congestion.

Deployment and Evaluation:

_Install and configure the system: Physically install the necessary hardware components and configure the software based on the designed system architecture.
_Conduct system-wide testing: Test the entire system in real-world conditions, including peak traffic hours and emergency scenarios.

Reference

1. AIContentfy (2023). Top 5 Strategies for Website Traffic Optimization and Growth. AIContentfy Blog. [Online]. Available at: https://aicontentfy.com/en/blog/top-strategies-for-website-traffic-optimization-and-growth (Accessed: 18 October 2023).

2. Institute of Transportation Engineers (2009). ITE Journal, Volume 79, Issue 6. [Online]. Available at: https://nacto.org/wp-content/uploads/2012/06/ITE-2009.pdf (Accessed: 18 October 2023).

3. diagrams.net (no specific year mentioned). Flowchart Maker & Online Diagram Software. [Online]. Available at: https://app.diagrams.net/ (Accessed: 18 October 2023).

4. ScienceDirect (no specific year mentioned). Title of the article. Title of the Journal, Volume(Issue), Page range. [Online]. Available at: URL (Accessed: 18 October 2023).

5. Quora (no specific year mentioned). What are the best traffic sources on the Internet? [Online]. Available at: https://www.quora.com/What-are-the-best-traffic-sources-on-the-Internet?top_ans=142553568 (Accessed: 18 October 2023).

6. ScienceDirect (no specific year mentioned). Title of the article. Title of the Journal, Volume(Issue), Page range. [Online]. Available at: URL (Accessed: 18 October 2023).