# Title of your Capstone Project

### Student 1

#### Your ID: 2018–0–0–0

**Student 2**

**Your ID: 2018–0–0–0**

**Student 3**

**Your ID: 2018–0–0–0**

**A Capstone project report submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering**



**Department of Computer Science and Engineering East West University**

**Dhaka-1212, Bangladesh**

**Month, Year**

**Declaration**

We, **Student 1, Student 2, and Student 3** hereby, declare that the work presented in this capstone project report is the outcome of the investigation performed by us under the supervision of **Supervisor Name**, Designation, Department of Computer Science and engineering, East West University. I/We also declare that no part of this project has been or is being submitted elsewhere for the award of any degree or diploma, except for publication.

Countersigned Signature

. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

(Name of the supervisor) (**Student 1 Name and ID) Supervisor**

Signature

. . . . . . . . . . . . . . . . . . . . . . . .

##### (Student 2 Name and ID)

Signature

. . . . . . . . . . . . . . . . . . . . . . . .

##### (Student 3 Name and ID)

**Letter of Acceptance**

The capstone project report entitled "Title of your capstone" is submitted by Student 1, Student 2, and Student 3 to the Department of Computer Science and Engineering, East West University, Dhaka, Bangladesh is accepted for the partial fulfillment of the requirement for the degree of Bachelor of Science in Computer Science and Engineering on (Date/Month/Year).

Board of Examiners

1.

(Capstone Project Supervisor)

Supervisor Name

Designation of the Faculty

Department of Computer Science and Engineering

East West University

2.

Chairperson Name

(Chairperson)

Designation of the Faculty

Department of Computer Science and Engineering

East West University

## Abstract

Template for Abstract (maximum 500 words): PROBLEM: What is the problem that motivates the thesis? Why is it important that the thesis is written? RESEARCH QUESTION: What is the research question that the thesis intends to answer? Alternately, what are the goals to be achieved? METHOD: How does the thesis use empirical and/or design research? Which research strategies and methods are used? RESULT: What are the results of the thesis? CONCLUSION: What is the answer to the research question? Alternately, to what degree have the goals been achieved? CONSEQUENCES: What are the practical, theoretical, ethical, and societal consequences of the thesis? (Many theses do not have consequences for all of these aspects.) ORIGINALITY AND SIGNIFICANCE: What is new and useful in the thesis? Who can make use of the thesis and in what way?

## Acknowledgments

For the better understanding, a sample Acknowledgment is given below.

As it is true for everyone, I/We have also arrived at this point of achieving a goal in my/our life through various interactions with and help from other people. However, written words are often elusive and harbor diverse interpretations even in one’s mother language. Therefore, I/We would not like to make eﬀorts to ﬁnd best words to express my thankfulness other than simply listing those people who have contributed to this thesis itself in an essential way. This work was carried out in the Department of Computer Science and Engineering at East West University, Bangladesh.

First of all, I/We would like to express my deepest gratitude to the almighty for His blessings on me/us. Next, my/our special thanks go to my/our supervisor, “Name of Your Supervisor”, who gave me/us this opportunity, initiated me/us into the ﬁeld of “Name of your Thesis/Project Field”, and without whom this work would not have been possible. His encouragements, visionaries and thoughtful comments and suggestions, unforgettable support at every stage of my/our B.Sc. study were simply appreciating and essential. His ability to muddle me/us enough to ﬁnally answer my/our own question correctly is something valuable what I/We have learned and I/We would try to emulate, if ever I/We get the opportunity.

I/We would like to thank “Name of your Friend” for his excellent collaboration during performance evaluation studies; “Name of your Friend” for his overall support; “Name of Someone” for her helpful suggestions in solving tricky technical problems. Last but

Acknowledgments iii

not the least, I/We would like to thank my/our parents for their unending support, encouragement and prayers.

There are numerous other people too who have shown me their constant support and friendship in various ways, directly or indirectly related to my/our academic life. I/We will remember them in my/our heart and hope to ﬁnd a more appropriate place to acknowledge them in the future.

Student 1 Name

November 2022

Student 2 Name

November 2022

Student 3 Name

November 2022

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## List of Algorithms

**List of Acronyms**

3D Three-Dimensional Space

AWS Amazon Web Services

VM Virtual Machine

**List of Notations**

*λ* This is Lambda

*µ* This is mu

*δ* This is Delta

# Chapter 1

**Introduction**

### Background

The sample headings have been provided for your benefit. You can copy and paste them as needed. To change the text in any of the headings, highlight the heading and begin to type your desired text. All five heading levels are provided in this template. For many projects, you may need only three heading levels. If there are any headings that you do not need, you are encouraged to simply select them and delete them. We recommend that students use a numbering system for headings—especially in documents that use a large number of subheadings. This is helpful for keeping the reader (and the writer) oriented [1] [2].

### Problem Statement and Analysis

You may click the INSERT tab at the top of this page and choose the PICTURE option. Once the picture is in the text, be sure to center it. All figures must be centered. Figure captions must be flushed to the left. To insert a new figure caption, place your cursor one (double-spaced) line below the figure, flushed to the left. Choose the REFERENCES tab at the top of the page and select INSERT CAPTION. Click OK. Once the caption is inserted, it is your responsibility to format it consistently (we recommend that “Figure #” be italicized with the caption itself not italicized). You can now return to your LIST OF FIGURES page, right click the text, and select the UPDATE FIELD option. Remember that you want to update the ENTIRE field.



**Figure 1.1:** This is a figure of an old, rusty ladder.

### Project Objectives

Table numbers and titles/descriptions (italicized) are placed above your table. The table itself, the table number, and the title of the table should be flushed to the left. Use INSERT CAPTION option from the REFERENCES ribbon to insert a table number. Since your caption will need to be below the table number (see example below), you must take the following step to ensure that your caption automatically goes into your List of Tables: if you type the caption description after the table number, you then place the cursor between the table number and the caption and press SHIFT+ENTER to split the caption to the next line. Alternately, you can create the table number with INSERT CAPTION, then insert a TEXT WRAPPING BREAK, and then type your description. Now, when you use the UPDATE FIELD option on your List of Tables, the caption will be included. Please note you will need to remove the italicized formatting from your table numbers to match our preferred style.

The main headings inside of each column of your table should be centered. The secondary headings (in this example the academy names would be secondary headings) should be flushed to the left. Numbers should be centered. Please ensure that the table extends to the margins.

You may copy, paste, and modify the sample tables to fit your needs. To number your tables in text, go the REFERENCES tab at the top of the page. By clicking INSERT and CAPTION you are able to add a new table number. Right click any sample table to modify the number of columns and rows. You can also select the INSERT tab at the top of the page and choose TABLES to add a new table in your text.

**Table 1.1**: School Comparisons of Scores.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Schools** | **Scores** | **Number of Students** | **Results** | **Total** |
| MTR Academy | 7.2 | 156 | 98 | 78 |
| PWD School of Science | 8.7 | 56 | 45 | 17 |
| CFC High School | 5.2 | 356 | 52 | 36 |
| RCP Academy | 6.4 | 421 | 87 | 90 |

### Project Contributions

You have reached the end of this mini-guide. You can now rename or overwrite this ﬁle and begin writing your own and the rest of your thesis. The easy work of setting up the structure and framework has been taken care of for you. It’s now your job to ﬁll it out! If you use this Thesis template and this mini-guide helps you, please let me know all comments and suggestions, questions and errata are welcome.

### Project Outlines

# Chapter 2

**Related Works**

1. **Survey of the State-of-the-art**
2. **Summary**

# Chapter 3

**Materials and Method**

1. **Materials**
2. **Dataset Collection**
3. **Dataset Exploration**
4. **Dataset Sampling**
5. **Dataset Processing**
6. **Research Environment and Devices**
7. **Method**
8. **Proposed Model**
9. **Design/Framework**
10. **Algorithm/Model Formulation**
11. **Experiment Setup**
12. **Summary**

# Chapter 4

**Results and Discussion**

1. **Obtained Results**
2. **In-Depth Result Analysis**
3. **Performance Evaluation**
4. **Discussion**
5. **Summary**

# Chapter 5

**Conclusion**

1. **Overall Contributions**
2. **Limitations and Future Works**

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7. M. Young, The Technical Writer’s Handbook. Mill Valley, CA: University Science, 1989.

[*The in-text citations and list of references, in IEEE or Harvard, referencing style – but consistently within that style. Use of citation and reference management software/tools/services are highly recommended. Citations of textbooks should be used very rarely and citations to web pages should be avoided. All cited papers should be referenced within the text of the report.*]

# Appendix A

# Mapping of Course and Program Outcomes

**CSE400-A**

**Program Outcomes:**

**PO1 (Engineering Knowledge):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

**PO4 (Investigation):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

|  |  |  |  |
| --- | --- | --- | --- |
| **CO** | **Details** | **Knowledge Profile (K)** | **Engineering problem (EP)** |
| CO1 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Identify a real-life problem [K1, K2, K3, K4]**  **K1: Theory-based natural Sciences:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **K2: Conceptually-based mathematics, numerical analysis, statistics, and formal aspects of computer and information science**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **K3: Theory-based engineering fundamentals**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **K4: Forefront engineering specialist knowledge for practice**: Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i)** **Identify a real-life problem [EP1, EP2, EP3, EP4, EP5, EP6, EP7]**  **EP1: Depth of knowledge required**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP2: Range of conflicting requirements**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP3: Depth of analysis required**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP4: Familiarity of issues**: Lorem Ipsum is simply dummy text of the printing and typesetting industry  **EP5: Extent of applicable codes**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP6: Extent of stakeholder involvement and conflicting requirements**: Lorem Ipsum is simply dummy text of the printing and typesetting industry  **EP7: Interdependence**: Lorem Ipsum is simply dummy text of the printing and typesetting industry. |
| CO2 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Define the problems [K8]**  **K8: Research Literature**: Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Define the problems [EP1, EP2, EP3, EP4, EP5, EP6, EP7]**  **[ Same as (CO1)]** |

**CSE400-B**

**Program Outcomes:**

**PO2 (Problem Analysis):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

**PO3 (Design/Development of Solutions)**: Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

**PO5 (Modern Tool Usage):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

**PO6 (The Engineer and Society):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

|  |  |  |  |
| --- | --- | --- | --- |
| **CO** | **Details** | **Knowledge Profile (K)** | **Engineering Problem (EP)** |
| CO3 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **i) Problem Analysis [K1, K2, K3, K4]**  **K1: Theory-based natural Sciences:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **K2: Conceptually-based mathematics, numerical analysis, statistics, and formal aspects of computer and information science:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **K3: Theory-based engineering fundamentals:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **K4: Forefront engineering specialist knowledge for practice:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. | (**i) Problem Analysis [EP1, EP2, EP3, EP6, EP7]**  **EP1: Depth of knowledge required:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP2: Range of conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP3: Depth of analysis required:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP6: Extent of stakeholder involvement and conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP7: Interdependence:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. |
| CO4 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Design and Implementation [K5]**  **K5: Engineering design:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i)Design and Implementation [EP1, EP2, EP4, EP5, EP6, EP7]**  **EP1: Depth of knowledge required:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP2: Range of conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP4: Familiarity of issues:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP5: Extent of applicable codes:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP7: Interdependence:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. |
| CO5 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. | **(i) Materials and Devices [K6]**  **K6: Engineering Practice (technology):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Materials and Devices [EP1, EP2, EP4, EP5]**  **EP1: Depth of knowledge required:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP2: Range of conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP4: Familiarity of issues:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP5: Extent of applicable codes:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. |
| CO6 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. | **(i) Social and Environmental Impact of Engineering [K7]**  **K7: Comprehension of engineering in society:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Social and Environmental Impact of Engineering [EP2, EP5, EP6]**  **EP2: Range of conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP5: Extent of applicable codes:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP6: Extent of stakeholder involvement and conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. |

**CSE400-C**

**Program Outcomes:**

**PO7 (Environment and Sustainability):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

**PO8 (Ethics):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

**PO9 (Individual Work and Teamwork):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

**P10 (Communication):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

**P11 (Project Management and Finance):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

**P12 (Life-Long Learning):** Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

|  |  |  |  |
| --- | --- | --- | --- |
| **CO** | **Details** | **Knowledge Profile (K)** | **Engineering Problem (EP)** |
| CO7 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Societal and environmental contexts [K7]**  **K7: Comprehension of engineering in society**: Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Societal and environmental contexts [EP2, EP5, EP6]**  **EP2: Range of conflicting requirements**: Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP5: Extent of applicable codes:** Lorem Ipsum is simply dummy text of the printing and typesetting industry.  **EP6:** **Extent of stakeholder involvement and conflicting requirements:** Lorem Ipsum is simply dummy text of the printing and typesetting industry. |
| CO8 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. | **(i) Ethical principle and practices [K7]**  **K7: Comprehension of engineering in society**: Lorem Ipsum is simply dummy text of the printing and typesetting industry. |  |
| C09 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. |  |  |
| CO10 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. |  |  |
| CO11 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. |  |  |
| CO12 | Lorem Ipsum is simply dummy text of the printing and typesetting industry. |  |  |

# Appendix B

**List of Publications**

### International Journal Papers (Scopus/WoS/SCI-indexed)

* + 1. Information of Journal Paper 1 (If Any).
    2. Information of Journal Paper 2 (If Any).
    3. Information of Journal Paper 3 (If Any).

### International Conference Papers (Proceedings/Lecture Notes)

* + 1. Information of Conference Paper 1 (If Any).
    2. Information of Conference Paper 2 (If Any).
    3. Information of Conference Paper 3 (If Any).
    4. Information of Conference Paper 4 (If Any).