Project title

Submitted in partial fulfillment of the
requirements for the degree

of

Bachelor of Technology

by

Student-1 Name (Student-1 Roll No)
Student-2 Name (Student-2 Roll No)
Student-3 Name (Student-3 Roll No)
Student-4 Name (Student-4 Roll No)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TECHNO MAIN SALT LAKE
EM 4/1, SALT LAKE, SECTOR - V, KOLKATA - 700091

CERTIFICATE

This is to certify that the project entitled "....." prepared by Name1 (Roll no), Name2 (Roll No) and Name3 (Roll No) of B.Tech (Computer Science & Engineering), Final Year, has been done according to the regulations of the Degree of Bachelor of Technology in Computer Science & Engineering. The candidates have fulfilled the requirements for the submission of the project report.

It is to be understood that, the undersigned does not necessarily endorse any statement made, opinion expressed or conclusion drawn thereof, but approves the report only for the purpose for which it has been submitted.

(Signature of the Internal Guide)	(Signature of the HOD)
(Signature of External Guide, if applicable)	(Signature of the External Examiner)

.....

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to our project guide in Computer Science and Engineering department. We are extremely thankful for the keen interest he / she took in advising us, for the books and reference materials provided for the moral support extended to us.

Last but not the least we convey our gratitude to all the teachers for providing us the technical skill that will always remain as our asset and to all non-teaching staffs for the gracious hospitality they offered us.

Student-1 Name (Student-1 Roll No)

Student-2 Name (Student-2 Roll No)

Student-3 Name (Student-3 Roll No)

Student-4 Name (Student-4 Roll No)

Techno Main Salt Lake
Date:

Contents

Abstract

This section should be within 600-800 characters including spaces. For your project, it should have: project purpose: 1 line (can be understood by anyone), detailed and specific purpose: 1 or 2 lines (specific to CSE), problem statement: 2 or 3 lines (specific to CSE), solution and expected results: 2 or 3 lines (specific to CSE) and project benefits: 1 line (should be understood by anyone)

1 Introduction

Briefly introduce the project's overall topic and purpose.

Provide specifications of Technical domain (Hardware, Operating System, Software) and Business domain.

Provide Glossary / Keywords in a tabular format.

2 Related Studies

For avoiding plagiarism, citations should be used for all referred texts particularly here and other parts of the document using appropriate numbers within square bracket for all mapped references under References section. You should check any standard journal paper for typical use of citations.

3 Problem Definition and Preliminaries

Specify business domain and high level technical domain for the problem you are solving in this project.

4 Proposed Solution

Explain your proposed work in details. Clearly state your specific contributions and reusable components deployed in the project.

5 Project Planning

State your project plan with up-to-date tasks, dependencies, timelines and milestones. You may paste your plan appropriately from MS Project etc.

Include cost analysis if applicable.

Mention the software life cycle model you followed.

6 Requirement Analysis

6.1 Requirement Matrix

As for Requirement Matrix entries, copy and paste the latest excel with all functional, non-functional and interface requirements and format under this section.

For Requirement Matrix, latest excel should be pasted and formatted here.

6.2 Requirement Elaboration

Create separate sections for separate areas of requirement as in Requirement Matrix.

For Requirement Elaboration, titles of sections s6.2.1, 6.2.2 etc. should be with the name of respective requirement areas. Your focus should be on: "What is needed in the system?" Requirement IDs should match with the ID column under Requirement Matrix.

7 Design

7.1 Technical Environment

State the hardware, operating system and software.

7.2 Detailed Design

Provide hierarchy of modules or overall system diagram. For Detailed Design, use flowcharts, DFD, UML or ER diagrams as applicable. Titles of s7.2.1, 7.2.2 etc. should be with the name of respective design modules. Your focus should be on: "How the requirement will be implemented in the system?" Design Reference subsection numbers should be matching as stated in Requirement Matrix.

Create separate sections for separate modules of design as in Requirement Matrix. Ensure to provide Design Diagrams (e.g. DFDs, ERDs etc.; cross-reference to be drawn from Chapter 6).Decision matrix (for algorithm recommendation etc.)

8 Implementation

8.1 Implementation Details

Create separate sections for constructing all modules and subsystems.

8.2 System Installation Steps

Detailed instructions covering prerequisites, setups of tools / libraries and system build. Following those instructions, anyone outside the project team should be able to rebuild your system.

8.3 System Usage Instructions

System usage instructions with screen layouts and detailed instructions

9 Test Results and Analysis

Provide test plan, test data and test scripts (as applicable). Test Plan should be provided in tabular format with Sl, Test Case, Expected Results, Observed Results and Status, where each Test Case should be represented with distinct id, prefixed with "T⟨ module ⟩", where module represents the short code of the respective design module. Test Case numbers should be matching as stated in Requirement Matrix.

Appropriate definition of 'Performance Metrics' (in terms of which performance is evaluated, as for example Classification Accuracy, Recall, Precision, Mean Squared Error, Sensitivity, Specificity,..etc.) should be included if required.

Depending on your specific project, test results can be represented as a table of data and corresponding pie chart / bar chart (if required).

Analysis of test results should be discussed in terms of clear bullet points.

10 Conclusion

State the project benefits. Outline the future scope for improvements.

11 References

Please list all referred papers / articles / journals / books including your own published papers / patent (if applicable). Listing and citations should follow IEEE standard format.

N.B. You may also create Appendix section if you need to elaborate any specific item, e.g. Data Collection and it is taking too many pages to cover.

Instructions (remove the following after your report is completed):

1. You need to create an account in overleaf `https://www.overleaf.com/project` (if not already created) and login.

2. Select 'New project' → 'Upload project' → select 'LaTex_template_BTP_Report.zip' file. You need to do this step only once. Next time on-wards, you can directly access the folder in overleaf and make necessary changes.

3. Only one person from the group can upload the project and the share the link to other members of the group who can edit and view the report.

4. Once the folder is loaded, select 'BTP_report.tex' file and click the 'Recompile' option. On the right window, you can see the generated pdf where the LaTeX source code is available on the left window.

5. In the 'BTP_report.tex' file change

   - Project title
   - Supervisor name
   - Supervisor designation
   - Name of the HOD
   - Designation of the HOD
   - Names and roll numbers of the students

6. 'Recompile' again to check if the changes are reflected.

7. The PDF file can also be downloaded.

Equations: Basic equations can be written using Inline math modes such as

- using `\(...\)`: `\(x^2 + y^2 = z^2\)` will generate $x^2 + y^2 = z^2$
- using `$...$`: `$(x^2 + y^2 = z^2)$` will generate $(x^2 + y^2 = z^2)$
- or, using `\begin{math}...\end{math}`:
  `\begin{math} x^2 + y^2 = z^2 \end{math}` will generate $(x^2+y^2 = z^2)$

You can use `\begin{equation}...\end{equation}` for display modes such as `\begin{equation} x^2 + y^2 = z^2 \end{equation}` resulting to

$$x^2 + y^2 = z^2 \tag{1}$$

Other details such as adding subscript, superscript, fractions, you can refer to `https://www.overleaf.com/learn/latex/Mathematical_expressions`

Citations: The citations should be made through adding a 'BibTex' entry in 'references.bib' file. Check the examples below:

```
  @Article{Einstein,
  author =       "Albert Einstein",
  title =        "{Zur Elektrodynamik bewegter K{\"o}rper}. ({German})
                 [{On} the electrodynamics of moving bodies]",
  journal =      "Annalen der Physik",
  volume =       "322",
  number =       "10",
  pages =        "891--921",
  year =         "1905",
  DOI =          "http://dx.doi.org/10.1002/andp.19053221004"
}
@online{WinNT,
  author = {MultiMedia LLC},
  title = {{MS Windows NT} Kernel Description},
  year = 1999,
  url = {http://web.archive.org/web/20080207010024},
  urldate = {2010-09-30}
}

@book{knuth1984texbook,
  title={The texbook},
  author={Knuth, Donald Ervin and Bibby, Duane},
  volume={15},
  year={1984},
  publisher={Addison-Wesley Reading}
```

}

`https://www.overleaf.com/learn/latex/Bibliography_management_with_bibtex` Template entries for 'BibTex' types of article, conference, book, thesis can be found here `https://www.bibtex.com/format/#templates`

The formatted 'BibTex' entries of a reference material can also be found in Google Scholar. Search with the title of the paper/thesis/book in Google scholar → Select 'Cite' option at the bottom the search results → Select 'Bibtex' option and copy the entry in 'references.bib' file.

For more detailed examples refer to `https://www.overleaf.com/learn/latex/Tables`

Important

1. Remove (Signature of External Guide, if applicable) on the **CERTIFICATE** page if you don't have an external guide. In any case, **(Signature of the External Examiner) must be right aligned** as in the template.

2. For avoiding plagiarism, citations should be used for all referred texts using appropriate numbers within square bracket for all mapped references under Section 8: References. You should check any standard journal paper for typical use of citations.

3. **Change the page header and replace "Project Name" text with your short project name**.

4. Select the document class 12pt.

5. Team should perform reasonable numbers of proof reading for avoiding unintentional errors and factual discrepancies before appearing in project viva.

6. At the time of final examination, (n+1) hard-bound copies of the report requiring (n+1) letter heads should be submitted, where n = team-size and 1 copy should be reserved for the department (not applicable for Midterm or Checkpoint Review)

7. For all figures, captions should be bold with centrally aligned and should be positioned below the figures, e.g. All image files are to be stored in the Images folder. For all figures, captions should be bold with centrally aligned and should be positioned below the figures. One such example is shown below:

```
\begin{figure}[ht]
  \centering
  \includegraphics[width=0.5\textwidth]{Brachistochrone-curve-plot.jpg}
  \caption{Sample Image}
  \label{fig:1a}
\end{figure}
```

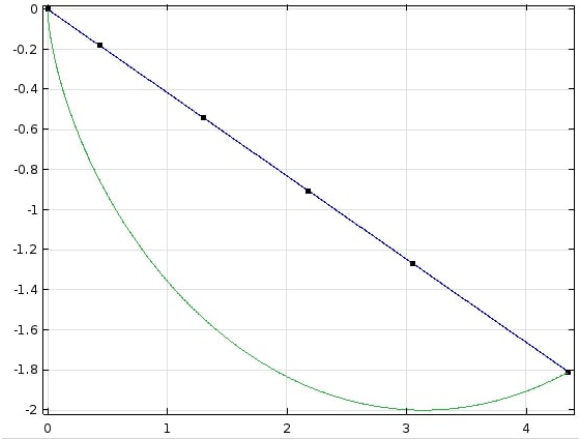

Figure 1: Sample Image

This figure will be referenced in the text as Figure 1. For more detailed references for adding figures, refer to `https://www.overleaf.com/learn/latex/Inserting_Images`.

8. For all tables, captions should be bold with centrally aligned and should be positioned above the tables. One such example is shown here.

```
\begin{table}[h!]
  \begin{center}
    \caption{Your first table with 3 columns and 5 rows}
    \label{tab:table1}
```

```
    \begin{tabular}{|c|r|l|} % <-- Alignments: 1st column middle,
    % 2nd right and 3rd left,
    % with vertical lines in between each column and row
    % \\
    \hline
      \textbf{Value 1} & \textbf{Value 2} & \textbf{Value 3}\\
      $\alpha$ & $\beta$ & $\gamma$ \\
      \hline
      1 & 1110.1 & a\\
      2 & 10.1 & b\\
      3 & 23.113231 & c\\
      \hline
    \end{tabular}
  \end{center}
\end{table}
```

Table 1: Your first table with 3 columns and 5 rows

Value 1	**Value 2**	**Value 3**
α	β	γ
1	1110.1	a
2	10.1	b
3	23.113231	c

This table can be referenced in the text as Table 1.

For more detailed examples refer to `https://www.overleaf.com/learn/latex/Tables`

9. If you have published related paper(s) in a standard journal / presented in a recognized conference, please ensure to refer the same under Section 8: References as well as including communication on your paper(s) acceptance / publishing note under the Appendix section. You should also show appropriate documentation at the time of project viva.

10. Depending on the type of your project, sections can be altered to this generic template.