**Applied Software Project Report**

By

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**A Master’s Project Report submitted to Scaler Neovarsity - Woolf in partial fulfillment of the requirements for the degree of Master of Science in Computer Science**

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**Date of Submission :** /10/24

**Certification**

I confirm that I have overseen / reviewed this applied project and, in my judgment, it adheres to the appropriate standards of academic presentation. I believe it satisfactorily meets the criteria, in terms of both quality and breadth, to serve as an applied project report for the attainment of Master of Science in Computer Science degree. This applied project report has been submitted to Woolf and is deemed sufficient to fulfill the prerequisites for the Master of Science in Computer Science degree.

Naman Bhalla

…………………

Project Guide / Supervisor

**DECLARATION**

I confirm that this project report, submitted to fulfill the requirements for the Master of Science in Computer Science degree, completed by me from < Project Module start date > to < Module end date >, is the result of my own individual endeavor. The Project has been made on my own under the guidance of my supervisor with proper acknowledgement and without plagiarism. Any contributions from external sources or individuals, including the use of AI tools, are appropriately acknowledged through citation. By making this declaration, I acknowledge that any violation of this statement constitutes academic misconduct. I understand that such misconduct may lead to expulsion from the program and/or disqualification from receiving the degree.

**<Full Name of the Candidate>**

**<Signature of the Candidate> Date: XX Month 20XX**

**ACKNOWLEDGMENT**

**<Insert a Paragraph within this Page to express gratitude to your family, Scaler instructors and everyone who helped, inspired or motivated you to complete the program and earn the Master’s degree>**

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## Applied Software Project

### Abstract

The abstract for an applied software project should succinctly summarize its title,

purpose, methods, results, and conclusions.

Since it is a technical project, focus on its real-life applications in the society or how such software

tools can be applied to modify existing processes for better outcomes in different industries.

Aim for conciseness, usually limiting it to under 300 words, to effectively convey the

project's essence.

### Project Description

Describe the project, Outline the objectives and explain its relevance.

Use Pictures, flow diagrams to illustrate the project well

Use the below format as reference when including a picture



**Figure 1.1**: Project Development Process (Figure captions go below figures.)

### Requirement Gathering

* Describe the requirements - Functional, Non-Functional Requirements
* Describe the Users and Use Cases
  + Include detailed Use Case Diagram / Images to illustrate
* List and detail out the Feature set -
  + Use Tables to list out the feature set

Use the below format as reference when including a table

**Table 1.1:** < Table caption > (Table captions go above tables.)

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |

### Class Diagrams

Describe the Low Level Design of the Project…

Provide class diagrams - Provide proper captions and follow the proper format for including diagrams / figures / images

**Tip** - Make images using draw.io and paste here following the guidelines for adding images / figures

### Database Schema Design

Explain the **Low Level Design** of the Project in more detail by providing the **database schema**

**design** description

Provide the schema design textually as well as diagrammatically

Sample Schema Design described textually -

“”

Tables:

Batches

* + Batch\_id
  + Name
  + Start\_month
  + Current\_instructor
  + Batch\_type\_id
  + Primary Key(Batch\_id)

Students

* + student\_id
  + name
  + graduation\_year
  + University\_name
  + email
  + Phone\_number
  + batch\_id
  + Buddy\_id
  + Primary Key(student\_id)

Classes

* Class\_id
* Name
* Date
* Time
* Instructor
* Primary Key(Class\_id)

Mentors

* + Mentor\_id
  + Name
  + Current\_company
  + Primary Key(Mentor\_id)

Mentor\_Sessions

* mentor\_session\_id
* time
* Duration
* Student\_id
* Mentor\_id
* Student\_rating
* Mentor\_rating
  + Primary Key(mentor\_session\_id)

Batches\_Classes

* + Batch\_id
  + Class\_id
  + Primary Key(Batch\_id, Class\_id)

Student\_batch\_history

* + student\_id
  + batch\_id
  + Shift\_date
  + Primary Key(student\_id, batch\_id)

Batch\_type

* + Batch\_type\_id
  + Batch\_type
  + Primary Key(Batch\_type\_id)

**Foreign Keys:**

* Batches(batch\_type\_id) refers Batch\_type(batch\_type\_id)
* Students(batch\_id) refers Batches(batch\_id)
* Mentor\_Sessions(Student\_id) refers Students(Student\_id)
* Mentor\_Sessions(Mentor\_id) refers Mentors(Mentor\_id)
* Batches\_Classes(Batch\_id) refers Batches(batch\_id)
* Batches\_Classes(student\_id) refers Students(Student\_id)
* Student\_batch\_history(student\_id) refers Students(Student\_id)
* Student\_batch\_history(batch\_id) refers Batches(batch\_id)

**Cardinality of Relations:**

* Between Batches and Batch\_type -> m:1
* Between Students and Batches -> m:1
* Between Batches and Classes -> m:m

“”

### Feature Development Process

Pick One key feature - Talk about its development process, implementation and performance optimisation / metric optimisation achieved…

For example, ‘Book a seat’ feature in developing ‘BookMyShow’ app

Elaborate the request flow to backend

* 1. API Request Payload
  2. Service which picks the request
  3. Flow of MVC architecture

Explain the performance improvement / metric optimization achieved.

For example,

* Used Cache to reduce API Response time by X seconds…
* Optimized Query Response time by using Indexing…

Benchmarking of response time without the optimisation and post the optimisation

### Deployment Flow

Explain how the deployment will work via AWS (Describe the below) -

* EC2
* VPC
* Security Groups
* RDS
* Cache
* Managed Infra / Elastic Beanstalk

Use diagrams, images to explain better

### Technologies Used

Kafka, MySQL, Springboot, Cloud etc…

* For each key technology used in building the project,
  + Detail and describe each of them
  + Elaborate how they can be used in real life
  + Provide example of real-life applications using them

Use diagrams, images to explain better

**Tip** - Use the internet to improve your project but DO NOT PLAGIARIZE - Include proper references if you are quoting articles from the internet

### Conclusion

The Conclusion should include some key points as elaborated below -

* Key Takeaways: Highlight the important concepts and technologies learned from doing the Project
* Practical Applications : Significance of technologies with their real-world applications
* Limitations : Limitations of the technologies, cost implications and suggestions for improvement

## References

Include the websites or works or the list of works referred to in a text or consulted by you for writing this report

1. Name of the Website, Date and time of referring to the Website, Name of the Author, Title/Topic
2. Author Name, Title / Topic, Research Paper Name / Book Name, Year of Publication

Format Guidelines

1. Detailed and Elaborate report of 40 pages at least is expected
2. Margins - Every page of your document must meet the margin requirements of 1.25 inches on the left and right, and 1 inch on the top and bottom.
3. Font:
   1. Style: Times New Roman,
   2. Font Size:14 (For Headings), 12 (For body text) in black colored text.
   3. All text must be the same justification, like left justified or fully justified.
4. Line Spacing:
   1. Body of the text: 1.5
   2. List of Tables/graphs/charts/bibliography: single line.
5. Alignment:
   1. Title page: Centre
   2. Chapter Heading: Centre
   3. Subheading: Left
   4. Body of the text: Justify
6. Titles: All titles and subtitles should be in bold. All tables/graphs/charts/figures should have appropriate titles.
7. Numbering of the tables, charts, graphs should be in the following fashion: Second table/graph/chart in the second chapter should be numbered as Table/graph/chart no. 2.02; where the first digit stands for chapter no. and digits after (.) stands for number of table/graph/charts in that chapter. Same numbering should be followed for all other chapters.