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| HIGH LEVEL DESIGN DOCUMENT  <TITLE OF THE PROJECT>  UE20CS390A – Capstone Project Phase – 1  ***Submitted by:***   |  |  | | --- | --- | | **Name 1**  **Name 2**  **Name 3**  **Name 4** | **<SRN 1>**  **<SRN 2>**  **<SRN 3>**  **<SRN 4>** |   Under the guidance of   |  | | --- | | **Prof. Guide Name**  Designation  PES University |   **January - May 2023**  **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  FACULTY OF ENGINEERING  **PES UNIVERSITY**  (Established under Karnataka Act No. 16 of 2013)  100ft Ring Road, Bengaluru – 560 085, Karnataka, India |

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# Note:

|  |  |
| --- | --- |
| **Section – 1 & Section 2** | **Common for Product Based and Research Projects** |
| **Section 3 to Section 11** | **High-Level Design for Product Based Projects.** |
| **Section 12** | **High-Level Design for Research Projects.** |
| **Appendix** | **Provide details appropriately** |

# Introduction

[Describe the document and explain the high level design of the solution. This is based on the requirements specified in the Project Requirement Specifications document.]

# Current System [if applicable]

[Describe the current system that is being enhanced, replaced or upgraded.]

1. **Design Considerations** 
   1. **Design Goals**

[Describe the goals, guidelines, principles of the design

Examples of design goals include:

* Explain why the newly proposed system is better than the existing system. Elaborate the “look and feel”.
* Describe the quality of services characteristics like availability, security and privacy, speed.]
  1. **Architecture Choices**

[Explain the alternate choices considered and why your choice most is appropriate

Write briefly about the Pros and cons.]

# Constraints, Assumptions and Dependencies

[Describe the assumptions or dependencies regarding the system and its use.]

Include the limitations constraints that have a significant impact on the design of the system. Such constraints may be imposed by any of the following

* Interoperability requirements
* Interface/protocol requirements
* Data repository and distribution requirements
* Discuss the performance related issues as relevant.
* End-user environment.
* Availability of Resources.
* Hardware or software environment
* Discuss issues related to deployment in target environment, maintainability, scalability, availability, etc.
* Any other requirements described in the Requirements Document.]

# High Level System Design

[Provide high-level design view of the system]

[This section should not go into the detail about that the deliverable. Rather, this section should identify the logical user groups, application components, data components, and interfacing systems. Illustrate the collaboration and interaction between the major components. Identify any relevant design patterns or reuse relevant to the design.]

[The diagram should include the following,

* Logical Dataflow.
* Servers, Storage, Networks, Database Architecture.]

[Provide technical specifications with enough detail to develop the system.]

Identify the system elements in from different perspectives.

1. Conceptual or logical – This elaborates the logical functional elements of the system. [UML – component or package diagram]
2. Process - Runtime view of the system. [UML – Interaction diagram].
3. Physical – Brief the view of the distributed system. [UML – Deployment diagram].
4. Module – Describe the project management and code organization.
5. Security – Describe the security features of the system.

**[Note: It is not mandatory to describe all these perspectives, document only the** **ones which will help you design and implement the system.]**

# Design Description

[Clearly define the interfaces that exist between two or more modules/classes. This could be represented diagrammatically for better understanding of the system.

This section explains briefly about the major modules and classes.]

* 1. **Master Class Diagram**

[A class diagram of the entire system will be given at a high level and then broken down into sub levels in each of the class.]

* 1. **Reusability Considerations**

[Describe the reusability considerations planned for the project. They may comprise of the following:

* Project Components that are and can be generated with available reusable components.
* Components that can be built in the project for reuse in the project.]

1. **ER Diagram / Swimlane Diagram / State Diagram (include as appropriate)**

[Include the ER Diagram. The following table shall be filled for details of the entities and their data elements / attributes. Include the description of the data / function used in each module / function.]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Entity** | **Name** | **Definition** | **Type** |
| **ENTITIES** | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| **#** | **Attribute** | **Name** | **Definition** | **Type (size)** |
| **DATA ELEMENTS** | | | | |
|  |  |  |  |  |
|  |  |  |  |  |

1. **User Interface Diagrams**

[A brief description of the screen will be given here.]

1. **Report Layouts**

[This includes a description of the report, which will cover selection criteria, sorting and grouping criteria and the tables used to generate the report. Details like the columns of the table to be used will be mentioned in the low-level design document. The actual report layout will be put into an appendix and a reference to the same will be provided here.]

1. **External Interfaces**

[Give an overall diagram as to how the system with known interfaces will work. However, the description of the interface may or may not be covered in this document, depending on whether it is within the scope of the offshore development.]

1. **Packaging and Deployment Diagram**

[The packaging and deployment for the system implementation shall be presented here.]

# Help

[Describe the help planned for the system like, online / context sensitive help and other documentation (e.g. User Manual, Technical Manual) planned, to aid in the usage of the system.]

1. **Design Details**

[Briefly describe all the platforms, systems, and processes that it depends on and comprise any vital changes that need to be made to them.

Below are some examples but it is not an exhaustive list]

* 1. **Novelty**
  2. **Innovativeness**
  3. **Interoperability**
  4. **Performance**
  5. **Security**
  6. **Reliability**
  7. **Maintainability**
  8. **Portability**
  9. **Legacy to modernization**
  10. **Reusability**
  11. **Application compatibility**
  12. **Resource utilization, Etc.,**

# Appendix A: Definitions, Acronyms and Abbreviations

[Provide definition of all terms, acronyms and abbreviations required for interpreting this High Level Design document.]

# Appendix B: References

[This section describes the complete list of documents referred to prepare the High Level Design. This section shall describe the title, version number, dates, authors and publishers of the referenced documents whenever applicable.

If industry standard methodology is used for design, it will be clearly mentioned here. If however, other methodologies are used, the deviation from a standard methodology will be clearly described.]

# Appendix C: Record of Change History

[This section describes the details of changes that have resulted in the current High-Level Design document.]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Date** | **Document Version No.** | **Change Description** | **Reason for Change** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# Appendix D: Traceability Matrix

[Demonstrate the forward and backward traceability of the system to the functional and non-functional requirements documented in the Requirements Document.]

|  |  |
| --- | --- |
| **Project Requirement Specification Reference Section No. and Name.** | **DESIGN / HLD Reference Section No. and Name.** |
|  |  |
|  |  |
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