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|  | GOVERNMENT OF KARNATAKA | Form No: |
| Department of Technical Education | Revision: |
| Shree Vidyadhiraj Polytechnic, Kumta (370) -581362 |  |
| E-Mail: -svpkumta@gmail.com | Date: |

**Capstone project**

**Format- 1**

**Capstone project Scope Document**

**Capstone project Scope Document**

The capstone project scope clearly describes what the capstone project will deliver and outlines all the work required for completing the capstone project.

**Capstone project Title** : Employee Database Management System

**Group Members:**Deepti, Deeksha, Nishmita, Sounjna

**Problem Statement:**

Develop an Employee Database Management System that efficiently organizes and manages employee information, including personal details, job roles, qualification, dependents’ details, nominee details, leave management and salary slip generation. The system should prioritize data security, user accessibility, and streamline administrative tasks to enhance overall workforce management.

**Objectives:**

**Efficient Data Organization**: Ensure systematic storage and retrieval of employee information, including personal details, job roles, qualification, dependents’ details and nominee details.

**Streamlined Record Keeping:** Facilitate easy maintenance and update of employee records, reducing manual paperwork and enhancing accuracy.

**Improved Accessibility:** Enable authorized personnel to access relevant employee data promptly, fostering quick decision-making and efficient human resource management.

**Enhanced Security Measures:** Implement robust security protocols to safeguard sensitive employee information and maintain compliance with data protection regulations.

**Automated Processes:** Integrate automation for routine administrative tasks such as leave management, and salary slip generation, reducing manual workload.

**Capstone project description:**

The Employee Database Management System (EDBMS) is a comprehensive software solution designed to efficiently handle various aspects of employee information within an organization such as college. This project aims enhance data accuracy, and provide valuable insights for effective decision-making.

**Capstone project Deliverables:**

1.**Database Design and Schema**: Includes the Entity-Relationship Diagram (ERD) and data schema defining the structure of the employee database.

2.**User Interface (UI) Design**: Mockups or wireframes illustrating the visual representation of the system, ensuring a user-friendly interface.

3.**Backend Development Code**: Source code for the backend, encompassing database interactions, business logic, and security features.

4.**Authentication and Authorization Setup**: Implementation of secure login mechanisms and role-based access control to safeguard data integrity.

5.**Testing Documentation**: Test plans, test cases, and test results to ensure the system's functionality, security, and reliability meet requirements.

Key milestones:

1)**Requirements Definition**: Clearly define and document the functional and non-functional requirements of the Employee Database Management System (EDBMS) based on organizational needs and user expectations.

2) **Database Design and Schema Finalization**: Develop the Entity-Relationship Diagram (ERD) and finalize the database schema, determining the structure and relationships for storing employee information.

3) **Development and Integration**: Implement the backend and frontend components of the EDBMS, integrating features such as employee data management, attendance tracking, and leave management.

4) **Security Implementation**: Integrate authentication mechanisms and authorization controls to secure access to the system and protect sensitive employee data.

5) **Testing and Quality Assurance**: Conduct thorough testing, including unit testing, integration testing, and user acceptance testing, to ensure the system meets specified requirements and functions reliably.

**Constraints:**

1)**Data Privacy and Compliance**: Adhering to data protection laws and regulations imposes constraints on how employee data is collected, stored, and processed, requiring careful consideration of legal and ethical aspects.

2) **Security Measures**: Implementing robust security protocols may constrain user access and system functionality to ensure the confidentiality and integrity of sensitive employee information.

3) **Integration Challenges**: Integrating the Employee Database Management System with other organizational systems (e.g., payroll, timekeeping) can be challenging due to variations in data formats and system architectures.

4) **Resource Limitations**: Budget constraints and resource limitations may impact the extent of system features, development timelines, and ongoing maintenance capabilities.

5) **Legacy Systems and Data Migration**: Existing legacy systems within the organization may pose constraints on technology choices and require careful planning for data migration to the new employee database management system.

**Estimated Capstone project Duration:**

* The estimated duration of Employee Database Management System capstone project may range from 3 to 4 months, depending on the scope and complexity of the project.

**Estimated Capstone project cost**: INR 92000

Date

Signature of the student

Signature of the cohort owner

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**Capstone project**

**Format- 2**

**Work Breakdown Structure**

**Capstone project Name:** Employee Database Management System

**Capstone project Members:** Deepti, Deeksha, Nishmita, Sounjna

**Capstone project Objective(s):** The primary objectives of an Employee Database Management System is to centralize and streamline employee-related information, ensuring quick access, data accuracy, and security. This system facilitates efficient HR processes, automates routine tasks, supports compliance with regulations, and provides decision support through data analysis, ultimately contributing to organizational efficiency and effectiveness.

**Work Breakdown Structure**

Signature of the student

Date:

Signature of the cohort owner

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**Capstone project**

**Format- 3**

**Time Line Structure**

**Capstone project Name:** Employee Database Management System

**Capstone project Members:** Deepti, Deeksha, Nishmita, Sounjna

**Capstone project Objective(s):** The primary objectives of an Employee Database Management System is to centralize and streamline employee-related information, ensuring quick access, data accuracy, and security. This system facilitates efficient HR processes, automates routine tasks, supports compliance with regulations, and provides decision support through data analysis, ultimately contributing to organizational efficiency and effectiveness.

**Time Line Structure**

Signature of the student

Date:

Signature of the cohort owner

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**Capstone project**

**Format- 4**

**Cost Breakdown Structure**

**Capstone project Name:** Employee Database Management System

**Capstone project Members:** Deepti, Deeksha, Nishmita, Sounjna

A cost breakdown structure (CBS) breaks down cost data into different categories, and helps you manage costs efficiently. It is a crucial part of the capstone project planning and management process, as it allows you to gain better insight into how much you spend and what  you spend your capstone project budget on. When you have a solid structure in place, you can have better control of your capstone project costs to avoid going over budget.

PROJECT COST ESTIMATION:

* Front-end developer: 6,000/- per month
* Back-end developer: 6,500/- per month
* Blockchain developer: 8,000/- per month
* UI/UX designer: 6,000/- per month
* Quality Assurance (QA) engineer: 7,000/- per month

TOTAL TIME REQUIRED TO COMPLETE THE PROJECT:

16 weeks or 4 months

TOTAL LABOUR COST:

* Front-end developer: 6,000\* 2 = 12,000/-
* Back-end developer: 6,500 \* 3 = 19,500/-
* Blockchain developer: 7,500 \* 2 =15,000/-
* UI/UX designer: 6,000 \* 2 = 12,000/-
* Quality Assurance (QA) engineer: 7,000 \* 1.5 = 10,500/-

TOTAL SUM = 69,000/-

COST OF MATERIALS REQUIRED:

* AWS Cloud : 1000\*4 = 4000
* Domain Registration : 1,000
* SSL Certificate : 2,000
* Internet Cost : 1500\*4 =6000

TOTAL = 13,000/-

MISCELLANEOUS CHARGES :

1000\*3 = 3000/-

CONTIGENCY AMOUNT (COST NEEDED FOR FUTURE RISK):

7,000/- (0.7 months at 10,000 per month)

FINAL CHECK:

SUBTOTAL: 92,000/-

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**Capstone project**

**Capstone project Risk Analysis Report**

**Capstone project Name:** Employee Database Management System

**Capstone project Members:** Deepti, Deeksha, Nishmita, Sounjna

Risk Analysis:

1. Technical Risks:
   * Compatibility Issues: The Employee database management system may have compatibility issues with different browsers or operating systems, which can result in customer dissatisfaction and decreased revenue.
   * Security Risks: The Employee database management system may be susceptible to hacking attacks or data breaches, resulting in the loss of confidential customer information.
2. Schedule Risks:
   * Delay in Development: The development team may face delays in delivering the project, resulting in missed deadlines and potential loss of revenue.
   * Delay in Launch: The launch of The Employee database management system may be delayed due to technical issues or changes in requirements, resulting in customer dissatisfaction and decreased revenue.
3. Cost Risks:
   * Over Budget: The development costs of The Employee database management system may exceed the budget, resulting in financial losses for the company.
   * Unexpected Expenses: The Employee database management system may incur unexpected expenses, such as server maintenance or license fees, resulting in increased costs and reduced profits.
4. Organizational Risks:
   * Lack of Communication: Poor communication between team members can lead to misaligned objectives, missed deadlines, and increased costs.
   * Changes in Stakeholders: Changes in stakeholders can lead to changes in requirements or project goals, resulting in increased costs and delayed timelines.
5. People Risks:
   * Skill Shortage: The development team may lack the required skills to complete the project, resulting in increased costs and missed deadlines.
   * Employee Turnover: Key team members may leave the project, resulting in reduced productivity and increased costs.
6. Requirements Risks:
   * Changes in Requirements: Changes in requirements can lead to increased development costs, missed deadlines, and a decrease in customer satisfaction.
   * Unclear Requirements: Unclear or incomplete requirements can lead to misaligned objectives, increased development costs, and a decrease in customer satisfaction.
7. Business Risks:
   * Competition: The Employee database management system may face stiff competition from established players in the market, resulting in decreased market share and revenue.
   * Regulatory Changes: Changes in government regulations can affect the operations of The Employee database management system, resulting in increased costs and decreased revenue.

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**Capstone project**

**Identification of Methodology**

**Capstone project Name:** Employee Database Management System

**Capstone project Members:** Deepti, Deeksha, Nishmita, Sounjna

The Employee Database Management System is a web application that enables organizations to store employee related details. The development team used the agile methodology for the development of this project.

**Agile methodology** is an iterative and incremental project management approach that is widely used for software development projects. The agile methodology involves breaking down the project into small and manageable parts, known as sprints. Each sprint has a defined duration and is focused on delivering a specific set of features. The agile methodology used for The Employee database management system project involved the following steps:

**Sprint Planning:**  
The first step in the agile methodology was to plan the sprint. A sprint is a fixed duration of time during which a set of features is developed. The sprint planning involved identifying the features to be developed during the sprint, defining the scope, and estimating the effort required to complete the features.  
  
**Sprint Execution:**  
The second step in the agile methodology was to execute the sprint. The sprint execution involved developing the features identified during the sprint planning. The development was done using the spring boot, react and mysql.

**Daily Stand-Up Meetings:**The third step in the agile methodology was to hold daily stand-up meetings. These meetings were used to discuss the progress made during the sprint, identify any roadblocks, and plan the tasks for the next day. The daily stand-up meetings ensured that the development team was on track and any issues could be addressed promptly.

**Sprint Review:**  
The fourth step in the agile methodology was to conduct a sprint review. The sprint review involved reviewing the features developed during the sprint and seeking feedback from stakeholders. The feedback obtained during the sprint review was used to refine the features developed during the sprint and ensure that the project was on track.

**Sprint Retrospective:**  
The final step in the agile methodology was to conduct a sprint retrospective. The sprint retrospective involved reflecting on the sprint and identifying areas for improvement. The feedback obtained during the sprint retrospective was used to improve the development process for the next sprint.

**Advantages of Agile Methodology:**  
The use of agile methodology for The Employee database management system project provided several advantages. These advantages include:

* Flexibility: The agile methodology allowed the development team to be flexible and adapt to changes during the development process.
* Collaboration: The daily stand-up meetings and sprint review allowed for better collaboration between the development team and stakeholders.
* Faster Time-to-Market: The iterative and incremental development approach enabled the development team to deliver features faster, resulting in a faster time-to-market.
* Continuous Improvement: The sprint retrospective allowed for continuous improvement of the development process, resulting in a more efficient and effective development process.

**Conclusion:**  
The use of agile methodology for The Employee database management system project enabled the development team to deliver a functional and efficient system. The methodology involved sprint planning, sprint execution, daily stand-up meetings, sprint review, and sprint retrospective. The agile methodology enabled the development team to deliver the project in an efficient and effective manner, with continuous feedback and improvement throughout the development process.

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