**Zoo Management System**

### Submitted By

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**MINI LAB PROJECT REPORT**

This Report Presented in Partial Fulfillment of the course **CSE222: Object Oriented Programming II Lab in the Computer Science and Engineering Department**



### DAFFODIL INTERNATIONAL UNIVERSITY

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## DECLARATION

We hereby declare that this lab project has been done by us under the supervision of **Ms. Nasima Islam Bithi**, **Lecturer**, Department of Computer Science and Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere as lab projects.

**Submitted To:**



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## COURSE & PROGRAM OUTCOME

The following course have course outcomes as following:.

Table 1: Course Outcome Statements

|  |  |
| --- | --- |
| **CO’s** | **Statements** |
| CO1 | **Define** and **Relate** classes, objects, members of the class, and relationships among  them needed for solving specific problems |
| CO2 | **Formulate** knowledge of object-oriented programming and Java in problem solving |
| CO3 | **Analyze** Unified Modeling Language (UML) models to **Present** a specific problem |
| CO4 | **Develop** solutions for real-world complex problems **applying** OOP concepts while  evaluating their effectiveness based on industry standards. |

Table 2: Mapping of CO, PO, Blooms, KP and CEP

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CO** | **PO** | **Blooms** | **KP** | **CEP** |
| CO1 | PO1 | C1, C2 | KP3 | EP1, EP3 |
| CO2 | PO2 | C2 | KP3 | EP1, EP3 |
| CO3 | PO3 | C4, A1 | KP3 | EP1, EP2 |
| CO4 | PO3 | C3, C6, A3,  P3 | KP4 | EP1, EP3 |

The mapping justification of this table is provided in section **4.3.1**, **4.3.2** and **4.3.3**.

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**Chapter 1**

**Introduction**

**1.1 Introduction**  
The Zoo Management System aims to streamline zoo operations by automating tasks like animal tracking, health management, and staff coordination, improving efficiency and reducing errors.

**1.2 Motivation**  
Manual zoo management can lead to inefficiencies and mistakes. This system was developed to address these issues by centralizing and automating key processes, enhancing decision-making and communication.

**1.3 Objectives**

* Automate animal tracking and health status management.
* Track missing and found animals.
* Provide a user management system with different access levels.
* Implement search functionality for easy animal lookup.

**1.4 Feasibility Study**  
Existing systems are often fragmented or expensive. This project offers an integrated, cost-effective, and scalable solution for zoos of all sizes.

**1.5 Gap Analysis**  
Current systems lack integration between various zoo management tasks. This project fills that gap by offering a unified platform that manages both administrative and animal-related tasks.

**1.6 Project Outcome**  
The system will enhance zoo operations by automating animal tracking, health management, and administrative tasks. It will improve data accuracy, reduce manual errors, and increase efficiency, ultimately leading to better decision-making and improved satisfaction for staff and visitors.

**Chapter 2**

**Proposed Methodology/Architecture**

**2.1 Requirement Analysis & Design Specification**

**2.1.1 Overview**  
The system requires user roles for admin and staff, with functionalities for managing animals, health statuses, and user interactions.

**2.1.2 Proposed Methodology/System Design**  
A modular, object-oriented design will be used to ensure scalability and maintainability, focusing on animal management, health updates, and administrative tasks.

**2.1.3 UI Design**  
The system features a user-friendly interface for managing animals, viewing their status, marking missing/found animals, and tracking health updates.

**2.2 Overall Project Plan**  
The project will follow an iterative development process with phases for analysis, design, implementation, and testing, ensuring continuous improvement and refinement.

**Chapter 3**

**Implementation and Results**

**3.1 Implementation**

* User authentication with role-based access control for admins and staff.
* Animal management with health tracking, missing/found status, and disease updates.
* Integration for adding new animals and updating their statuses in real-time.

**3.2 Performance Analysis**  
The system efficiently handles multiple animal records, updates, and queries with minimal delay, ensuring smooth operation even with large datasets.

**3.3 Results and Discussion**  
The system meets its objectives by automating animal tracking, health management, and administrative tasks, leading to improved efficiency and reduced manual errors compared to traditional methods.

**Chapter 4**

**Engineering Standards and Mapping**

This chapter outlines the impact of the Zoo Management System on society, its sustainability plan, and the project management approach.

**4.1 Impact on Society, Environment, and Sustainability**  
**4.1.1 Impact on Life**  
The system enhances zoo operations, promoting better animal welfare and management, improving visitor experience, and supporting conservation efforts.

**4.1.2 Impact on Society & Environment**  
By digitizing zoo records, the system reduces paperwork, contributing to a smaller environmental footprint.

**4.1.3 Ethical Aspects**  
The system ensures ethical practices by safeguarding animal data, maintaining confidentiality, and ensuring transparency in animal health and care.

**4.1.4 Sustainability Plan**  
The system is designed to be scalable, adaptable, and maintainable for long-term use, supporting future growth and technological advancements.

**4.2 Project Management and Team Work**  
A detailed cost analysis shows the budget required for the project, including infrastructure, development, and maintenance costs. An alternative budget will be provided based on different deployment options, with rationales for each approach.

**4.3 Complex Engineering Problem**  
**4.3.1 Mapping of Program Outcome**  
The project addresses the integration of animal management, health monitoring, and administrative functions, aligning with program outcomes such as PO1 (technical knowledge) and PO3 (project management and teamwork).

**Chapter 5**

**Conclusion**

This chapter summarizes the project’s achievements and outlines future enhancements.

**5.1 Summary**  
The Zoo Management System successfully automates key zoo operations, including animal tracking, health management, and administrative tasks, improving efficiency and reducing manual errors.

**5.2 Limitation**  
Some advanced features, like predictive health analytics and integration with animal monitoring devices, were not fully implemented.

**5.3 Future Work**  
Future enhancements could include:

* Integrating real-time monitoring for animal health and behavior using IoT devices.
* Developing advanced data analytics for better decision-making and animal care insights.

# References

None.