**HOSPITAL MANAGEMENT SYSTEM**

**USING DATA STRUCTURE**

Submitted By

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HOSPITAL MANAGEMENT SYSTEM LAB REPORT

This Report Presented in Partial Fulfillment of the course **CSE124: Data Structure**

in the **Computer Science and Engineering Department**



**DAFFODIL INTERNATIONAL UNIVERSITY**

Dhaka, Bangladesh

**DECLARATION**

We hereby declare that this lab project has been done by us under the supervision of Name of the course teacher, course teacher’s Designation, 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:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Course Teacher’s Name

Designation

Department of Computer Science and Engineering

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**COURSE & PROGRAM OUTCOME**

The following course have course outcomes as following:

Table 1: Course Outcome Statements

|  |  |
| --- | --- |
| CO’s | Statements |
| CO1 | Apply the concept of stack, queue, tree and graph to create and manipulate new data types for solving real-life problems having complex engineering attributes. |
| CO2 | Solve a real-life problem having application of abstract data type created within the scope of complex engineering problem solving. |
| CO3 | Apply the knowledge attained in problem solving using team projects. |
| CO4 | Apply technique to implement the project. |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CO | PO | Blooms | KP | CEP |
| CO1  CO2 | PO3  PO2 | C3  C3, P4 | K5  K1 | EP6  EP2 |
| CO3 | PO9 | A1, A2 | K5 | EP1 |
| CO4 | PO2 | P2 | K1 | EP2 |

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. **Introduction**

**Problem Statement:**

We are working on a project **Hospital Management System** which is included with data structures that helps manage patient admissions, prioritize treatment based on urgency, and organize staff scheduling. Hospitals often handle multiple patients with different severity levels, requiring an efficient system to ensure that critical patients are attended to promptly.

* 1. **Motivation**

In today's fast-paced world, efficient management of hospital operations and patient information is crucial for delivering high-quality healthcare services. Traditional methods of maintaining hospital records, such as paper-based systems or simple spreadsheets, are often inefficient, prone to errors, and unable to support advanced functionalities like quick data retrieval, real-time updates, or secure access. The primary motivation behind developing the **Hospital Management System** is to provide a modern, digital solution that overcomes these limitations. This project aims to streamline various hospital processes, enabling efficient management of patient records, appointments, staff details, and other essential information. By leveraging this system, hospitals can ensure accurate data handling, reduce manual workload, and enhance overall healthcare delivery, making it easier for staff and patients to interact seamlessly and effectively.

* 1. **Objectives**

The Hospital Management System aims to provide an easy-to-use interface for healthcare staff to efficiently manage hospital operations. It allows handling patient records, staff schedules, appointments, and billing with essential features like adding, editing, and searching data. The system ensures data security through secure login, role-based access, and regular backups. By automating tasks such as appointment scheduling and billing, it reduces manual effort and improves efficiency. Real-time data access enables quick updates, better decision-making, and seamless communication across departments, ensuring high-quality patient care and streamlined hospital processes.

* 1. **Feasibility Study**
  2. **Gap Analysis**
  3. **Project Outcome**

**Problem Description:**

Design a Data Structure to input a patient information in queue and sort them based on their prioritize treatment by their given information in the engineering project described above. The data structure should allow for efficiently input a data with their names, age & other necessary information, manipulate the data while maintaining their information & search the details of a patient if needed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SN** | **Tasks** | **K/EP** | **CO** | **PO** |
| 1. | Design a data structure to input & searching a patient information in the engineering project described above. | K5/EP1,  EP6 | CO1 | PO3 |
| 2. | Show the relationships and dependencies between adding information, searching by name, update & delete the information. | K5/EP7 |
| 3. | (i) Which technique do you apply to implement this data structure based on memory-efficient or not that solve real-life issues. | K6/EP2 | CO2,  CO4 | PO2 |
| (ii) Based on your visualization, which traversal algorithm, do you apply to efficiently and manipulate the project. | K6/EP2 | CO4 | PO2 |