**CHAPTER 2**

**SYSTEM ANALYSIS**

System analysis is a critical phase in the development of an information system that involves examining and understanding the current system's functionality and identifying areas for improvement. This process includes gathering detailed requirements from stakeholders, evaluating existing systems and processes, and determining the needs and objectives of the new system. The goal of system analysis is to define the specific functionalities, constraints, and expectations for the proposed system, ensuring it effectively addresses the problems or limitations of the existing system. By analyzing the current setup and envisioning the desired improvements, system analysis lays the foundation for designing and implementing a solution that enhances operational efficiency and meets organizational goals.

**2.1 SYSTEM REQUIREMENTS**

System requirements are a set of specifications that define the necessary hardware, software, and operational capabilities needed for a system to function effectively. These requirements detail the technical and functional aspects of the system, including the hardware configurations (such as processors, memory, and storage), software components (such as operating systems, development tools, and database management systems), and user interfaces required to support the intended operations. They also outline performance criteria, security measures, and integration needs to ensure compatibility with existing systems and meet user needs. By clearly defining these requirements, organizations can ensure that the system is capable of supporting its intended functions, delivering reliable performance, and achieving the desired outcomes.

**2.1.1 HARDWARE REQUIREMENTS**

Hardware requirements define the physical components needed to support the operation of a software system effectively. They include specifications for the central processing unit (CPU), memory (RAM), storage, network connectivity, and peripheral devices, all of which are essential for running the system smoothly and efficiently. These requirements ensure that the hardware can handle the system's processing demands, store necessary data, provide reliable network access, and support user interactions. By establishing clear hardware requirements, organizations can ensure that their infrastructure is capable of supporting the software’s functionality, delivering optimal performance, and meeting the operational needs of the users

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| **Component** | **Minimum Requirements** | **Recommended Requirements** |
| Processor | Intel Core i3 or equivalent | Intel Core i5 or higher |
| RAM | 4 GB | 8 GB or higher |
| Storage | 250 GB HDD | 500 GB SSD or higher |
| Network | Reliable internet connection | High-speed internet connection |
| Display | 1024 x 768 resolution | 1920 x 1080 resolution or higher |

**2.1.2 SOFTWARE REQUIREMENTS**

Software requirements specify the essential software components and configurations needed to support the effective operation of an information system. These include the operating system, development tools, database management systems, and any additional software necessary for running and maintaining the system. Software requirements define the specific versions and capabilities of these components to ensure compatibility, performance, and security. They also encompass user interface design requirements, reporting tools, and integration capabilities with other systems. By outlining these requirements, organizations ensure that the software environment is conducive to the successful implementation and functioning of the system, providing the necessary tools and infrastructure to meet user needs and system objectives.

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| **Component** | **Details** |
| Operating System | Windows 7 or later (Windows 10/11 recommended) |
| Development Tools | Visual Studio 2012 |
| Programming Language | C#.NET |
| Database Management System | SQL Server 2012 or later |
| Database Management Tool | Microsoft SQL Server Management Studio (SSMS) |