



PSD Shastri Educational Foundation's  
ASMA INSTITUTE OF MANAGEMENT  
Approved by AICTE, New Delhi, Affiliated to Savitribai Phule Pune University (Inst. Code: 6164)  
Shastri Campus: S. No. 85, NDA Road, Shivane, Pune - 411 023,  
Ph.: (020) 25291471, 25293332, 9011036202 Fax: (020) 25291461  
E-mail: enquiry@asma.in, director@asma.in Website: www.asma.in

**Project Report of  
Shubham Angad Dhumal  
(ITC4), (MCA)**

**Director**

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**A**

**PROJECT REPORT ON TC MANAGER**

**SUBMITTED BY- SHUBHAM ANGAD DHUMAL**

**(EXAM SEAT NO : 2321)**

**CLASS: MCA II YEAR**

**UNDER THE GUIDANCE OF**

**PROF. SARIKA JADHAV**

**SAVITRIBAI PHULE PUNE UNIVERSITY  
MASTER OF COMPUTER APPLICATION**



**ASMA Institute Of Management College  
Shivane Pune 411023**

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Director

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**ASMA Institute Of Management College  
Shivane Pune 411023**

**CERTIFICATE**

This is to certify that **Mr./Miss. Shubham Angad Dhumal** is a bonafide student of ASMA Institute of Management, Pune-23, has successfully completed the project work in the Partial Fulfillment of Master of Computer Application (MCA) Program as per guidelines provided by the Savitribai Phule Pune University for Academic Year 2023-24

Prof. Sarika Jadhav

Project Guide

Prof. Prakash Patil

HOD

Dr. Tannu Ganesh

Director

PSD Shastri Educational Foundation's  
ASMA Institute of Management

External Examiner:

Internal Examiner:

Date: 28/05/2024

Place: Pune

Director

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## Declaration

To,  
The Principal,  
ASMA Institute of Management  
Shivane, Pune-23

Respected Sir,

I, Mr. / ~~Miss~~ **Shubham Angad Dhumal** hereby declare that the Project entitled "TC MANAGER" has been developed and submitted under the guidance of Prof. Sarika Jadhav is my original work.

The Project work presented here is my own work and has not been duplicated from any other sources.

Date: 28/05/2024

Place : Pune

  
Yours Sincerely

**Shubham Angad Dhumal**

  
Director

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## Acknowledgement


I would take this opportunity to thank Tannu Ganesh Sir, Director of ASMA for their extended support to me throughout the course.

I would like to thank Prof. Prakash Patil sir, HOD, MCA Department for scholarly disposition, timely guidance, support and cooperation.

I would like to thank Prof. Sarika Jadhav for his/her kind guidance, keen interest, continuous encouragement and inspiration throughout the project work.

Finally, I am grateful to all the staff members of ASMA for their cooperation and support.

I am also thankful to get constant encouragement, support and guidance from all teaching and non-teaching staff for their support which helped us in successfully completion of our project work.

  
Mr. / Miss. **Shubham Angad Dhumal**

Exam Seat No:- 2321

  
Director  
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Date: 25<sup>th</sup> April 2024

### Certificate Of Completion

This is to certify that **Mr. SHUBHAM ANGAD DHUMAL**, a student of **ASMA INSTITUTE OF MANAGEMENT COLLEGE SHIVANE, PUNE 411023** worked as an intern Software Developer in this Organization. During his training in 'Development Team', he completed project work on "**TC Manager**" from. **15 Nov 2023 to 15 April 2024**. He has worked as a team member and delivered the application on time and with expected Quality and efficiency.

Wish you very best to your future assignments.



Authorized Signatory,  
For Markgenic Software Pvt Ltd, Pune

HR Manager



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## ABSTRACT

Online TC Generation is a software solution which allows a particular institute via an online environment. This can be done through the local area network environments. Some of the problems faced by manual generation systems are delay in filtering of records is not easy. The chance of records is high and also record searching is difficult. Maintenance of the system is also very difficult and takes a lot of time and effort. Student Information can be used by education institutes to maintain the records of students easily. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming. All these problems are solved using this project.

A Transfer Certificate (TC) is an official document issued by an educational institution that certifies a student's enrollment, conduct, and academic performance during their tenure at the institution. The TC is typically required when a student seeks admission to another school or college, as it serves as proof of their previous educational background and eligibility for transfer.

Key Elements of a Transfer Certificate: -

1. **\*\*Student Information\*\***:

- Name of the Student
- Date of Birth
- Admission Number

2. **\*\*Academic Details\*\***:

- Classes Attended
- Duration of Study
- Subjects Studied
- Performance/Grades

3. **\*\*Conduct and Character\*\***:

- Behavior and Discipline
- Participation in Extracurricular Activities

4. **\*\*Reason for Leaving\*\***:

- Reason for Transfer (e.g., relocation, change of school, completion of course)

5. **\*\*Authentication\*\***:

- Date of Issue
- Signature of the Principal/Headmaster
- Official Seal of the Institution

The Transfer Certificate plays a crucial role in ensuring a smooth transition between educational institutions, providing a standardized record of the student's history and achievements.



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# CHAPTER-1

# INTRODUCTION



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The objective of Online TC Generation is to allow the administrator of any organization to edit and find out the personal details of a student and allows the student to keep up to date his profile. It also facilitates keeping all the records of students, such as their Id, Name, Mailing Address, Phone Number, Date of Birth etc. So all the information about a student will be available in a few seconds. The main purpose of the Online TC Generation project is to generate a student transfer certificate automatically without having any physical records.

Every Educational Institution requires Transfer certificate is mandatory after the successful completion of the course. Entering this record manually is a very complex and time consuming task. To increase the speed of this process Transfer Certificate system is required.

The Transfer Certificate (TC) is an essential document in the academic journey of a student. It serves as proof of their previous enrollment and performance, ensuring smooth transition between educational institutions. This report examines the structure, purpose, and significance of Transfer Certificates, along with an analysis of their usage in educational settings.

#### **Scope :**

Without student information managing and maintaining the details of the student is a difficult job for any organization. TC Generation will store all the details of the students including their background information, educational qualifications, and personal. Input of groceries, & providing tips on food storage.

#### **Objectives:**

The college management has to handle records for many numbers of students and maintenance was difficult. Though it used an information system, it was totally manual. Hence there is a need to upgrade the system with computer based information.

- To understand the importance and purpose of a Transfer Certificate.
- To analyze the key components and structure of a Transfer Certificate.
- To study the process of issuing and utilizing Transfer Certificates.
- To assess the impact of Transfer Certificates on student mobility and academic progression.

#### **Existing System :**

In the current system we need to keep a number of records related to the student and want to enter the details of the student and the marks manually. In this system only the teacher or the

  
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college authority views the marks of the student and they want to enter the details of the student. The college issued the transfer certificate. They check the student details manually. It is a time consuming process and has many costs.

The system starts with registration of new staff and students. When the subjects are to be allocated to the faculty, the Head of the Department should enter everything in the Excel sheets. Then the staff enters corresponding subjects and marks of a student then those must also be entered in the Excel sheets and validations are to be done by the user itself. So there will be a lot of work to be done and must be more conscious during the entrance of details. So, more risk is involved. The study involved a combination of qualitative and quantitative research methods.

Data was collected through:

- **Literature Review**: Examining academic papers, educational policies, and existing guidelines on Transfer Certificates.
- **Surveys**: Conducting surveys with students, teachers, and administrative staff to gather insights on the TC process.
- **Interviews**: In-depth interviews with school principals and administrative officers to understand the procedural aspects.



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# CHAPTER-2

## PROPOSED SYSTEM INCLUDING MODULES



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This system has the following functional divisions. College Administrator User (Faculties). College Administrator has the rights of creating a department, allocating courses to departments, creating faculties, students and allocating subjects to faculties and modifications in the data entered by the user can also be done by the college administrator. Users of this may be faculty or students. Faculty has the facility of entering the marks of the students. Reports must be generated for the existing data i.e. for marks of the students, which are used to assess the performance of the students. These reports should be viewed by the in charge and user.

#### **Modules**

1. Administrator.
2. Faculty.

#### **REQUIREMENT ANALYSIS :**

The primary goal of the system analyst is to improve the efficiency of the existing system. For the development of the new system, a preliminary survey of the existing system will be conducted.

#### **Feasibility Study**

Preliminary investigation examines project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running systems. All systems are feasible if they have unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility
- Operational Feasibility
- Economical Feasibility

#### **Technical feasibility:**

Technical support is also a reason for the success of the Online TC Generation project. The techniques needed for the system should be available and it must be reasonable to use. Technical Feasibility is mainly concerned with the study of function, performance, and constraints that may

  
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affect the ability to achieve the system. By conducting an efficient technical feasibility we need to ensure that the project works to solve the existing problem area. Since the Online TC Generation project is designed with ASP.NET with C# as Front end and SQL Server 2008 as Back end, it is easy to install in all the systems wherever needed. It is more efficient, easy and user-friendly to understand by almost everyone. Huge amount of data can be handled efficiently using SQL Server as back end. Hence the Online TC Generation project has good technical feasibility.

**Economical Feasibility:**

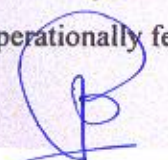
Economic Feasibility is mainly concerned with the cost incurred in the implementation of the software. Since this project is developed using ASP.NET with C# and SQL Server which is more commonly available and even the cost involved in the installation process is not high. Similarly it is easy to recruit persons for operating the software since almost all the people are aware of ASP.NET with C# and SQL Server. Even if we want to train the persons in these areas the cost involved in training is also very less. Hence the Online TC Generation project has good economic feasibility.

**Cost Estimate Analysis:**

Economical Feasibility is a study of Financial Requirements. It is a very important requirement to develop any project. It specifies how much of an amount is needed to develop a project. It depends upon the resources that are used in the project. If few resources are used in the project then less amount is needed to develop the project. If more resources are used in the project then more money is needed to develop the project. Online TC Generation project uses few resources, so less amount of money is needed to develop this project.

**Operational Feasibility:**

People are inherently instant to change and computers have been known to facilitate change. An estimate should be made to how strong a reaction the user staff is likely to have towards the development of the computerized system. The staff is accustomed to computerized systems. These kinds of systems are becoming more common day by day for evaluation of software engineers. Hence, this system is operationally feasible. As this system is technically, economically and operationally feasible, this system is judged feasible.

  
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# CHAPTER-3

# SOFTWARE REQUIREMENT SPECIFICATION



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The purpose of Software Requirement Specification is to reduce the gap between the clients and the developers. Software Requirement Specification is the medium through which the needs of the client and or the user are accurately specified. It forms the basis of software development. A good SRS should satisfy all the parties involved in the system. Having a clear distinction between the needs of the client, any software can be developed which will satisfy the client's requirement meeting his specifications.

### **Requirement Elicitation:**

A requirement is a feature that the system must have or a constraint that it must satisfy to be accepted by the client. Requirement engineering aims at defining the requirements of the system under construction.

Requirement Elicitation is about communication among developers, clients, and users for defining a new system. It focuses on describing the purpose of the system. Such a definition is called system specification.

Requirement Elicitation, which results in the specification of the system that the client understands, and analysis, which results in an analysis model that the developers can unambiguously interpret. Requirement Elicitation is the analysis model that the developers can unambiguously interpret.

Requirement Elicitation is the more challenging of the two because it requires the collaboration of several groups of participants with different backgrounds. On the one hand, the client and the users are experts in their domain and have a general idea of what the system should do, but they often have little experience in building systems, but often have little knowledge of everyday environment of the users.

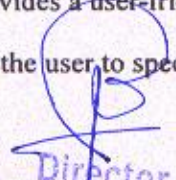
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Requirement Elicitation focuses on describing the purpose of the system. The client, the developers, and the users identify a problem area and define a system that addresses a problem. Requirement elicitations focus only on the user's view of the system.

### **FUNCTIONAL REQUIREMENTS**

These requirements will specify the tasks concerning design, development, coding, testing and maintenance.

- The system provides a user-friendly Graphical User Interface (GUI).
- It should allow the user to specify the places and services.

  
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These requirements will specify the tasks concerning design, development, coding, testing and maintenance.

There are four types of functional requirements they are

1. Input
2. Output
3. Computational
4. Storage

#### Input

In the Project Online TC Generation should accept the valid username & password as input for admin. After that Admin input the faculty details and student details. The details of the faculty like faculty id, faculty name, designation, department, password, mobile no, email id and profile picture. The details of the student like admission no, registration no, student name, date of birth, gender, profile picture are etc. After the registration is completed the admin will approve the faculty and student details.

#### Output

After the faculty details are stored in the database then it displays the output as the faculty details are added successfully with faculty id, faculty name, gender, designation, department, password, mobile no, email id and profile picture. After the student details are stored in the database then it displays the output as the student details are added successfully with admission no, registration no, student name, date of birth, gender, department, course and profile picture etc. The faculty sees the student details and enters their internal marks. The HOD maintains the details of students like student marks and fees details. After completing the course the administrator will check the entire details of the student and generate the transfer certificate.

#### Computational:

After the faculty and student registration is done the admin approves the faculty and student registration. It displays all the student details to the assigned faculty by HOD.

The faculty can see their student details and they maintain the internal marks also.

The HOD can maintain both faculty details and student details; they also maintain the student fees details. After completing the course the HOD can check all the student records and all are clear they generate the transfer certificate.

#### Storage (Database Requirements)

The faculty and student details will be stored in the database in the organized format. In that storage the database will display the data in the format of rows and columns. The backend has the capability of flexibility and authentication for retrieving the database.

  
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**Date Requirements:**

- Hard disk : 100GB
- Ram : 1GB (or) Higher
- Database : MySQL
- Server-Side Technology : Dot Net
- Server Web based : IIS (Internet Information Server)

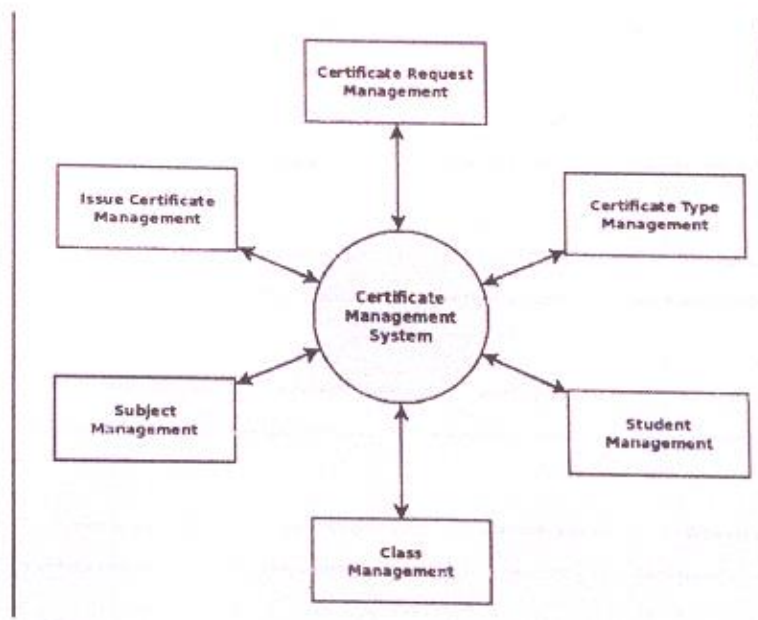
**Non-functional requirements:**

Non-functional requirements describe user visibility aspects of the system that are not related to the functional behavior of the system.

The non-functional requirements describe the internal design details. The following are the non-functional requirements:

The major non-functional requirements of the system are as follows:

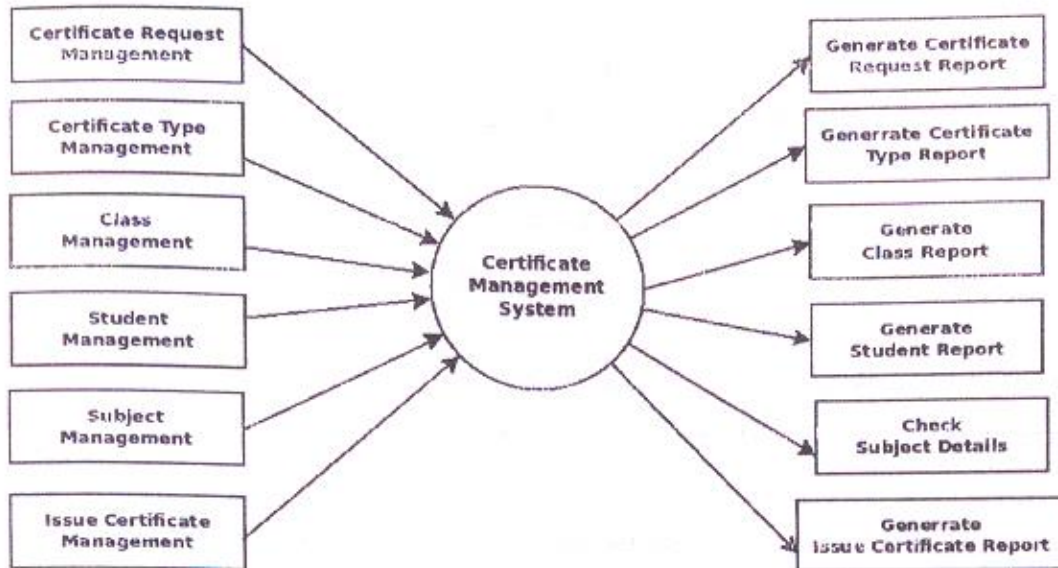
**Data Flow Diagram :**



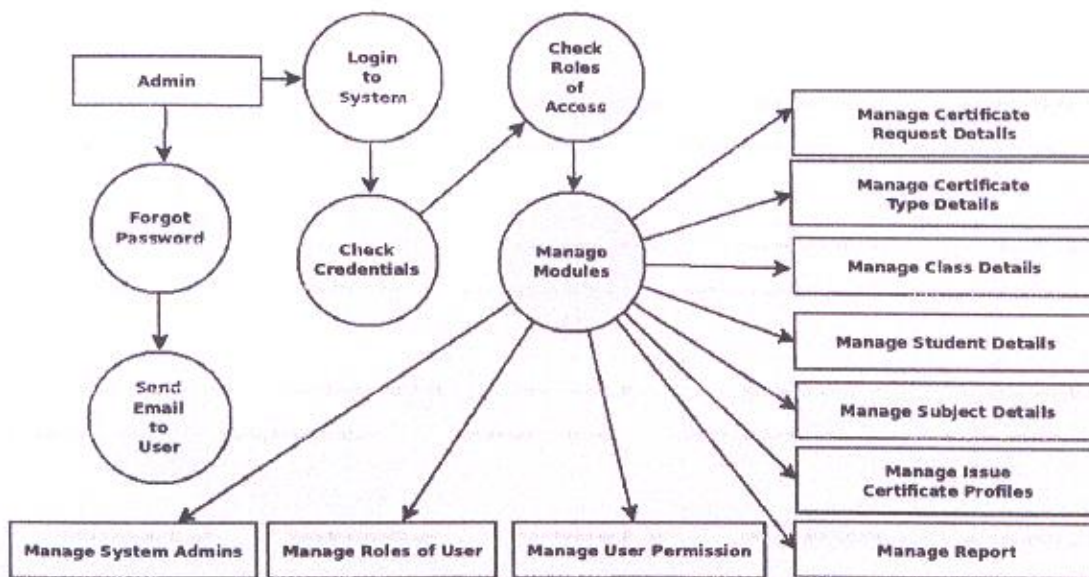
**First Level DFD :**

  
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**Entity Relationship Diagram :**

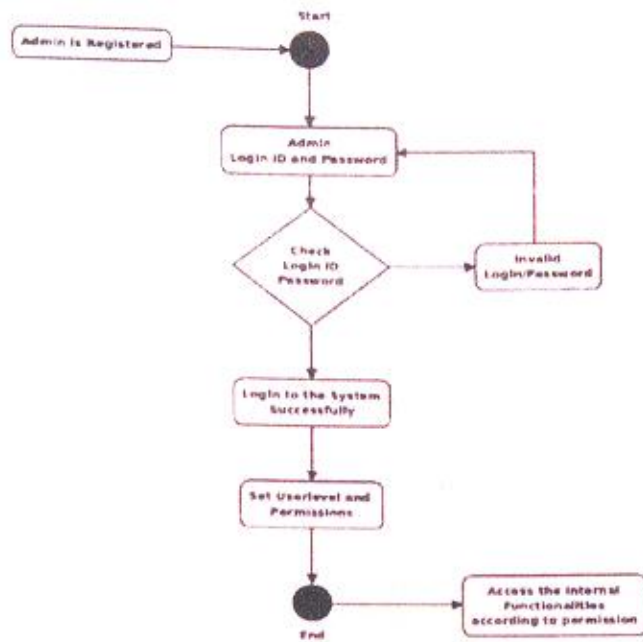


**Login Activity Diagram :**

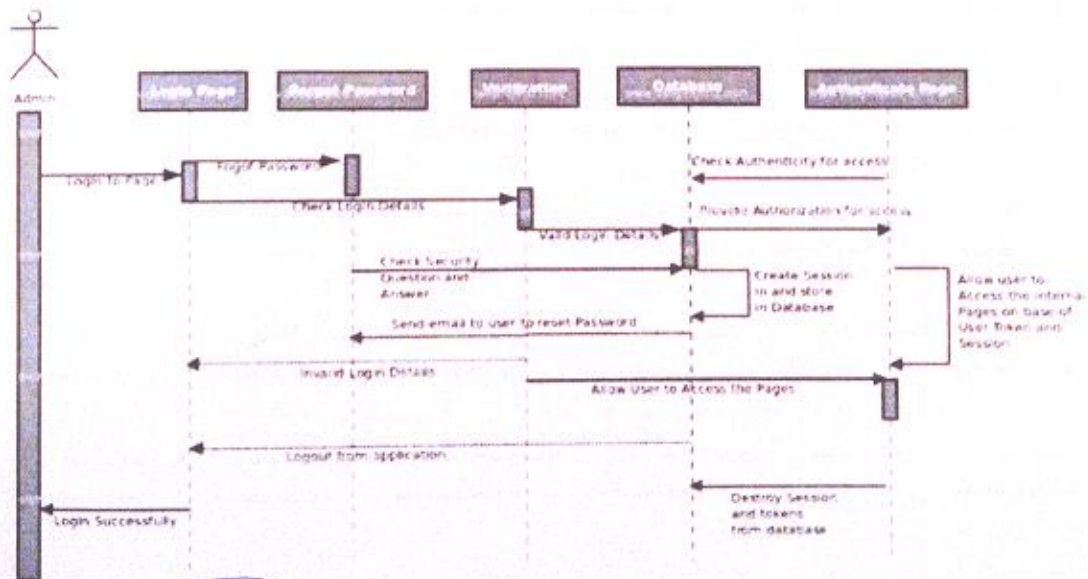
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**UML Diagram :**



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This is the UML sequence diagram of the Transfer Certificate Management System which shows the interaction between the objects of Student, Class, Transfer, Certificate Type, Certificate. The instance of class objects involved in this UML Sequence Diagram of Transfer Certificate.



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# CHAPTER-4

## ENVIRONMENT TECHNOLOGY REQUIREMENTS



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Years of research went into developing the prototype of today's popular graphical user interface. So, a long research in this field, by the Xerox Corporation resulted in the first graphical user interface in the Xerox computer before IBM PC's or Macintosh and GEM (from digital research). DESQVIEW.

### Windows:

Windows is a software program that makes an IBM PC (or compatible) easy to use. It does this by simplifying the computer's user interface, a buzzword that the way you give your computer commands, the way we interact with it.

The .NET Framework is a technology that supports building and running the next generation of apps and XML Web services. The .NET Framework is designed to fulfill the following objectives:

- To provide a consistent object-oriented programming environment whether object code is stored and executed locally, executed locally but Internet-distributed, or executed remotely.
- To provide a code-execution environment that minimizes software deployment and versioning conflicts.
- To provide a code-execution environment that promotes safe execution of code, including code created by an unknown or semi-trusted third party.
- To provide a code-execution environment that eliminates the performance problems of scripted or interpreted environments.
- To make the developer experience consistent across widely varying types of apps, such as Windows-based apps and Web-based apps.
- To build all communication on industry standards to ensure that code based on the .NET Framework integrates with any other code.

The .NET Framework consists of the common language runtime (CLR) and the .NET Framework class library. The common language runtime is the foundation of the .NET Framework. Think of the runtime as an agent that manages code at execution time, providing core services such as memory management, thread management, and remoting, while also enforcing strict type safety and other forms of code accuracy that promote security and robustness. In fact, the concept of code management is a fundamental principle of the runtime. Code that targets the runtime is known as managed code, while code that doesn't target the runtime is known as unmanaged code. The class library is a comprehensive, object-oriented collection of reusable types that you use to develop apps ranging from traditional command-line or graphical user interface (GUI) apps to apps based on the latest innovations provided by ASP.NET, such as Web Forms and XML Web services.

  
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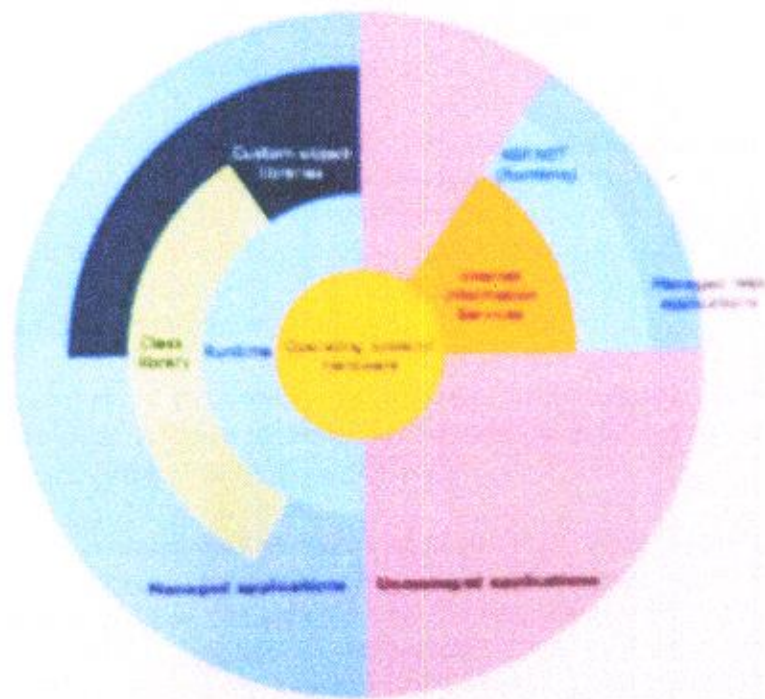


The .NET Framework can be divided by architectural components that build the platform (operating system and device) processes and control the flow of managed code. Another grouping is by language, allowing that programs look managed and unmanaged language. The .NET Framework and code provides several runtime levels that also supports the development of devices and other hosts.

For example, the .NET Framework provides a scalable, server-side architecture for managed code. A .NET application works directly with the runtime to create a .NET application and .NET and device code, which are discussed later in this topic.

Internet Explorer is an example of an unmanaged app that hosts the runtime. In the case of a .NET application, using Internet Explorer to host the runtime enables you to embed managed components in Windows Forms controls in HTML documents. Hosting the runtime in the web makes managed runtime code possible, but with significant improvements that only managed code offers, such as untrusted execution and isolated file storage.

The following illustration shows the relationship of the common language runtime and the class libraries to your apps and to the overall system. The illustration also shows how managed code executes within a larger architecture.



.NET Framework in context

The following sections describe the main features of the .NET Framework in greater detail.

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## Features of the common language runtime.

The common language runtime manages memory, thread execution, code execution, code safety verification, compilation, and other system services. These features are intrinsic to the managed code that runs on the common language runtime.

Regarding security, managed components are awarded varying degrees of trust, depending on a number of factors that include their origin (such as the Internet, enterprise network, or local computer). This means that a managed component might or might not be able to perform file-access operations, registry-access operations, or other sensitive functions, even if it's used in the same active app.

The runtime also enforces code robustness by implementing a strict type-and-code-verification infrastructure called the common type system (CTS). The CTS ensures that all managed code is self-describing. The various Microsoft and third-party language compilers generate managed code that conforms to the CTS. This means that managed code can consume other managed types and instances, while strictly enforcing type fidelity and type safety.

In addition, the managed environment of the runtime eliminates many common software issues. For example, the runtime automatically handles object layout and manages references to objects, releasing them when they are no longer being used. This automatic memory management resolves the two most common app errors, memory leaks and invalid memory references.

The runtime also accelerates developer productivity. For example, programmers write apps in their development language of choice yet take full advantage of the runtime, the class library, and components written in other languages by other developers. Any compiler vendor who chooses to target the runtime can do so. Language compilers that target the .NET Framework make the features of the .NET Framework available to existing code written in that language, greatly easing the migration process for existing apps.

While the runtime is designed for the software of the future, it also supports software of today and yesterday. Interoperability between managed and unmanaged code enables developers to continue to use necessary COM components and DLLs.<sup>1</sup>

The runtime is designed to enhance performance. Although the common language runtime provides many standard runtime services, managed code is never interpreted. A feature called just-in-time (JIT) compiling enables all managed code to run in the native machine language of the system on which it's executing. Meanwhile, the memory manager removes the possibilities of fragmented memory and increases memory locality-of-reference to further increase performance.

Finally, the runtime can be hosted by high-performance, server-side apps, such as Microsoft SQL Server and Internet Information Services (IIS). This infrastructure enables you to use managed code to write your business logic, while still enjoying the superior performance of the industry's best enterprise servers that support runtime hosting.



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## .NET Framework class library

The .NET Framework class library is a collection of reusable types that tightly integrate with the common language runtime. The class library is object oriented, providing types from which your own managed code derives functionality. This not only makes the .NET Framework types easy to use but also reduces the time associated with learning new features of the .NET Framework. In addition, third-party components integrate seamlessly with classes in the .NET Framework.

For example, the .NET Framework collection classes implement a set of interfaces for developing your own collection classes. Your collection classes blend seamlessly with the classes in the .NET Framework.

As you would expect from an object-oriented class library, the .NET Framework types enable you to accomplish a range of common programming tasks, including tasks such as string management, data collection, database connectivity, and file access. In addition to these common tasks, the class library includes types that support a variety of specialized development scenarios. Use the .NET Framework to develop the following types of apps and services:

- Console apps.
- Windows GUI apps (Windows Forms).
- Windows Presentation Foundation (WPF) apps.
- ASP.NET apps.
- Windows services.
- Service-oriented apps using Windows Communication Foundation (WCF).
- Workflow-enabled apps using Windows Workflow Foundation (WF).

The Windows Forms classes are a comprehensive set of reusable types that vastly simplify Windows GUI development. If you write an ASP.NET Web Form app, you can use the Web Forms classes.

## ASP.NET Introduction

ASP.NET is a technology used for creating Web applications and Web services that are executed in the IIS server. The ASP.NET pages are compiled making the application faster than classic ASP. It provides a good level of consistency over the web applications. It has a large set of user controls, XML based components and user authentication.

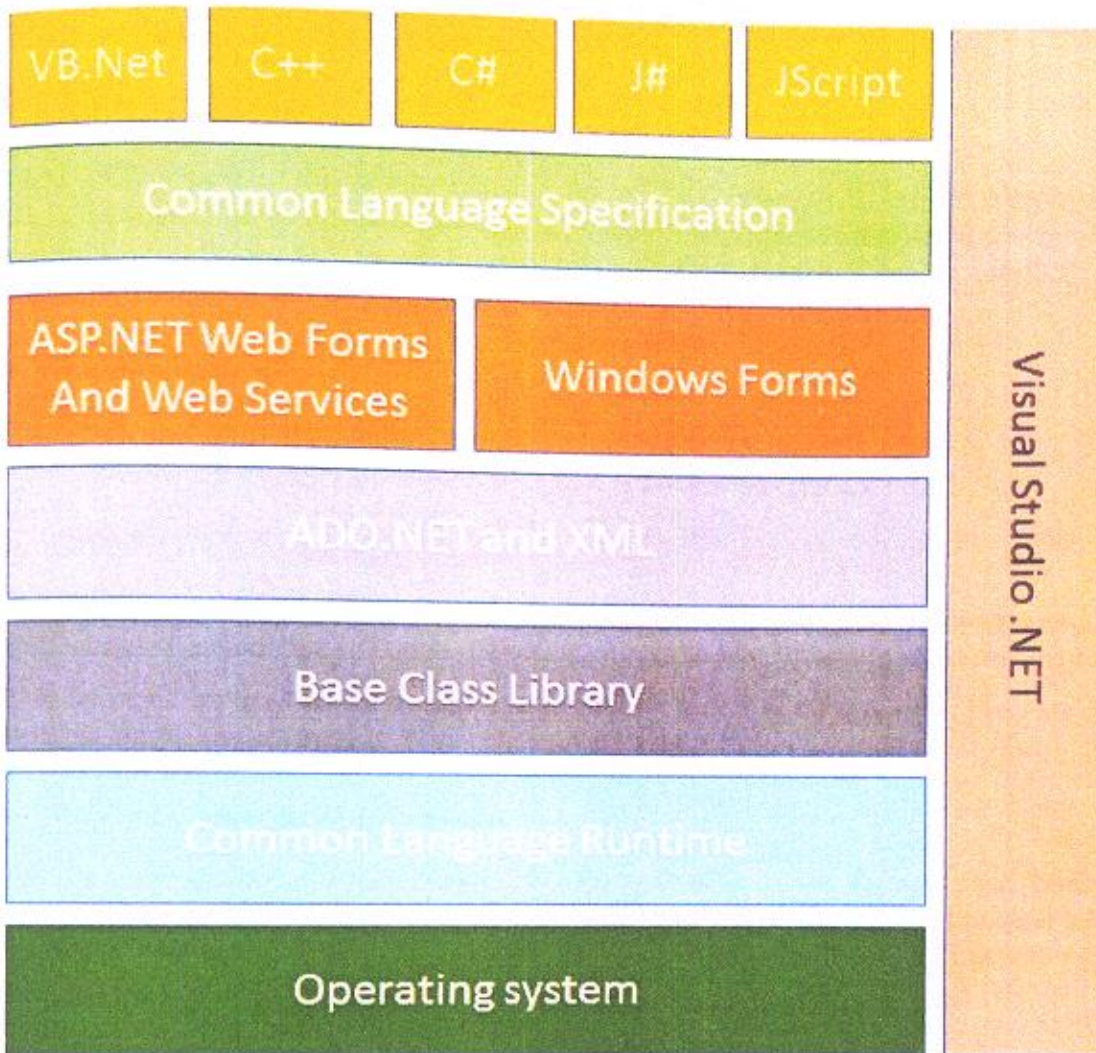
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## Framework of ASP.NET



The ASP.NET framework is as shown in Fig (a). There various components of the ASP .NET framework and their features are mentioned below:

### 1. Common Language Runtime:

The Common Language Runtime (CLR) is used as an execution engine for the .NET framework. All the ASP.NET code is executed in the CLR. It performs functions like security, memory management, exception handling, thread execution, code verification, code security. The Just In time compiler is used for compilation of the ASP.NET code.

The source is compiled into the intermediate language code. The JIT compiler converts the IL code into native code that is specific to the system.

### 2. Base Class Library:

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The Base Class Library is the functionality available to all the .NET framework languages. It provides various features like database connectivity, XML document manipulation, classes and interfaces that are reusable with the CLR.

### 3. ADO.NET and XML:

ADO.NET is used for the database operations in .NET. It works efficiently with SQL Server, OLEDB, XML. The operations like accessing data from the data source, updating and manipulating data are performed through ADO.NET. Extensible Mark-up Language (XML) is useful for designing the web pages in .NET

### 4. Windows Forms:

The windows Forms application is used for creating window applications in .NET. There are wide controls and designing features available for Windows Forms.

### 5. ASP.NET Web Forms and Services:

The Web Forms user to create Web based applications. They include web pages and several GUI components for designing. It helps simultaneous addition of controls at runtime and design time.

Web Services are used when the user needs a specific task to be executed. They are used for creating single applications or distributed on the web.

### 6. Common Language Specification:

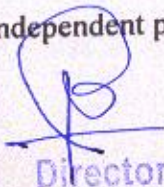
The Common Language Specification (CLS) is a set of language features used for developing web applications and web services. It ensures interoperability among applications without the language dependency. It defines a subset of Common Type System (CTS) providing objects of different languages to interact with each other.

### 7. Visual Studio .NET:

The Visual Studio .NET is used for developing all the web and windows applications. The GUI interface and extensive built in class libraries are provided in the component. Web Services can be developed and deployed using Visual Studio.

### Advantages of ASP.NET

- The code is reduced for building application through ASP.NET
- It is server side technology; the code is executed at the server before sending it to the browser.
- It is easy to deploy applications as the components are not registered in the system
- The applications developed are safe and secure due to Windows authentication
- The performance is better due to early binding, just in time compilation, and code optimization
- It is language independent providing user the flexibility to develop the application

  
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- The ADO.NET used for data binding makes the application run faster with large volumes of data.

## **DOT NET DATABASE CONNECTIVITY (ADO.NET)**

ADO.NET uses a multi-layered architecture that revolves around a few key concepts, such as Connection, Command, and Dataset objects. However, the ADO.NET architecture is quite a bit different from classic ADO.

One of the key differences between ADO and ADO.NET is how they deal with the challenge of different data sources. In ADO, programmers always use a generic set of objects, no matter what the underlying data source is. For example, if you want to retrieve a record from an Oracle database, you use the same Connection class you would use to tackle the same task with SQL Server. This isn't the case in ADO.NET, which uses a data provider model.

### **ADO.NET Data Providers**

A data provider is a set of ADO.NET classes that allows you to access a specific database, execute SQL commands, and retrieve data. Essentially, a data provider is a bridge between your application and a data source.

The classes that make up a data provider include the following:

- **Connection:** You use this object to establish a connection to a data source.
- **Command:** You use this object to execute SQL commands and stored procedures.
- **Data Reader:** This object provides fast read-only, forward-only access to the data retrieved from a query.
- **Data Adapter:** This object performs two tasks. First, you can use it to fill a Dataset (a disconnected collection of tables and relationships) with information extracted from a data source. Second, you can use it to apply changes to a data source, according to the modifications you've made in a Dataset.

ADO.NET doesn't include generic data provider objects. Instead, it includes different data providers specifically designed for different types of data sources. Each data provider has a

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specific implementation of the Connection, Command, DataReader and DataAdapter classes that's optimized for a specific RDBMS (Relational database management system). For example, if you need to create a connection to a SQL Server database, you'll use a connection class named SQL Connection.

One of the key underlying ideas of the ADO.NET provider model is that it's extensible. In other words, developers can create their own provider for proprietary data sources. In fact, numerous proof-of-concepts examples are available that show how you can easily create custom ADO.NET providers to wrap no relational data stores, such as the file system or a directory service. Some third-party vendors also sell custom providers for .NET.

The .NET Framework is bundled with a small set of four providers:

- **SQL Server Provider:** Provides optimized access to a SQL Server database (version 7.0 or later).
- **OLEDB Provider:** Provides access to any data source that has an OLEDB driver. This includes SQL Server databases prior to version 7.0.
- **Oracle Provider:** Provides optimized access to an Oracle database (version 8i or later).
- **ODBC Provider:** Provides access to any data source that has an ODBC driver.

Introduction to SQL Server

#### Hardware requirements:

Processor : i5  
RAM : 2GB and above  
HDD : 100GB and above  
Monitor : Color Monitor.

#### Software Requirements:

Technology : DOTNET

  
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Operating System : Windows Platform (ex: vista, xp, 7)  
Front end : Microsoft Visual studio 2010  
Back end : SQL SERVER 2008  
Application : Web Application



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# CHAPTER-5

# CONCLUSION



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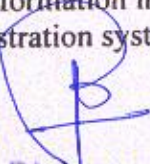
Transfer Certificates are indispensable in the academic landscape, ensuring smooth transitions for students between institutions. Despite challenges in the process, the implementation of standardized procedures and efficient administrative practices can significantly enhance the efficacy of Transfer Certificates.

The Transfer Certification System can be used for the faster delivery of the transfer certificate system.

In conclusion, the Transfer Certificate project has been a comprehensive effort to modernize and optimize the management of student transfer certificates. The transition from manual to automated processes has resulted in numerous benefits:

1. **Efficiency and Speed**: The new system has drastically reduced the time required to issue transfer certificates. Automated workflows eliminate redundant steps, ensuring swift processing and delivery.
2. **Accuracy and Reliability**: Digitizing records has minimized human errors associated with manual entries. Consistent data validation and verification processes have enhanced the reliability of the information.
3. **Accessibility and Convenience**: Students and parents can now request and receive transfer certificates online, without the need for physical visits to administrative offices. This accessibility has made the process more user-friendly and convenient.
4. **Transparency and Traceability**: The system allows for real-time tracking of application status, providing transparency and peace of mind to applicants. Educational institutions can easily verify the authenticity of certificates through a centralized database.
5. **Security and Compliance**: Robust security protocols have been implemented to protect sensitive student information from unauthorized access and breaches. The system complies with relevant data protection regulations, ensuring the privacy and security of all stakeholders.
6. **Sustainability**: Reducing the reliance on paper-based processes aligns with environmental sustainability goals. The project supports the broader initiative of creating a more eco-friendly educational environment.
7. **Scalability and Future-readiness**: The scalable nature of the system allows it to accommodate growing numbers of users and evolving requirements. The infrastructure is designed to integrate with future technological advancements, ensuring long-term relevance and utility.

Overall, the Transfer Certificate project represents a significant leap forward in administrative efficiency, user satisfaction, and data security within the education sector. It sets a precedent for further digital transformation initiatives, paving the way for a more streamlined and modern educational administration system. The successful implementation of this project underscores the

  
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importance of leveraging technology to enhance operational effectiveness and service delivery in educational institutions.



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