**3. SYSTEM ANALYSIS**

**AND**

**DESIGN**

**SYSTEM ANALYSIS**

System design’s main aim is to identify the modules that should be in the system, and the specifications of these modules and how they interact with each other to produce the desired results. At the end of the system design all the major data structures, file formats and the major modules in the system and their specification are decided.

**3.1 DATA FLOW DIAGRAM**

A DFD has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design.

The symbols used in DFD are shown below

Source or destination of data

Data flow

Process that transforms data flow

Data store

**DFD(Data Flow Diagrams)**

### Context level Diagram

### 

SQL Server database

User validation

Student details

Administrator/

User

Approve request

Gets feedback

Student details

### Level 0 Data Flow Diagram

Program details

Administrator/

User

Status/Error/Conformation Message

Personal Info

Student Info

Educational Info

Reports

Examaination

info

SQL Server database

Student details

Student details

SIS configuration

Reports about mark

### Level 1 Data Flow Diagram

Course details

Administrator Options

Student

### 

Student details

System Configuration

Report

System Style

Graphical report about mark

Student details

Report generation details

Student mark details

### 

Final internal mark details

Internal mark details

Admission details

**Level 2 Data Flow Diagram**

Status message

Mark details

Reg No

Hard copy

Selection

Student details

Admission

Conformation message

Conformation message

Reg No

Student

Personal details

Educational details

SQL Server Database

Reg No

Old info

Students info

SQL Server Database

Students info

Status message

SQL Server Database

Reg No

SQL Server Database

Student

Students info

Students info

Status message

Reg No

Internal mark

Test 2 mark

Test 1 mark

Total Internal mark

Additional mark

Seminar/Viva voce

Attendance

Mark details

Student details

Administrator

User name

Background style

Graphical layout

Password

Reg No

Mark details

Report

Graphical/ Text reports

Questions

Reg No

Search

Anything

Question

Reg No

Name

Search

Year

Course

Educational details

Examination details

Personal details

**3.4 TABLE DESIGN**

The general theme behind a database is to handle information as an integrated whole. A database is a collection of interrelated data stored with minimum redundancy to serve many quickly and effectively. The database is a collection of stored data organized in such a way that all the data requirements are satisfied by the database.

The aim of database design is to improve the existing system situation. A number of database files were designed to hold the data requirements for running their systems.

Here we have 16 major tables , described below.

**TABLE DESIGN**

**DATABASE: STUDENTINFORMATIONSYSTEM**

1. **TABLE: LOGINTABLE**

**Primary Key: Username**

**Description: To store the changed username and password.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **Username** | **Varchar** | **50** | **username** |
| **Password** | **Varchar** | **50** | **password** |
| **Hint** | **Varchar** | **50** | **Password Hint** |

1. **TABLE: SUBJECTTABLE**

**Primary Key: SubjectId**

**Description: to store the Subject details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **SubjectId** | **int** | **3** | **Subject ID** |
| **Subject Name** | **Varchar** | **65** | **Name of the subject** |
| **Course** | **Varchar** | **15** | **Course name** |
| **Sem** | **int** | **1** | **Semester** |
| **Credit** | **int** | **2** | **Credits of each subject** |

1. **TABLE: MAINTABLE**

**Primary Key: RegNo**

**Description: to store the most require details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **Int** | **8** | **Register Number** |
| **StudentName** | **Varchar** | **35** | **Name of the student** |
| **Course** | **Varchar** | **15** | **Course name** |
| **Yearofstudy** | **Int** | **4** | **Year of study** |

1. **TABLE: PERSONALTABLE**

**Primary Key: RegNo**

**Description: to store the Personal details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **int** | **8** | **Register Number** |
| **StudentName** | **Varchar** | **35** | **Name of the student** |
| **Course** | **Varchar** | **15** | **Course name** |
| **Yearofstudy** | **int** | **4** | **Year of study** |
| **Address** | **Varchar** | **75** | **Address of student** |
| **Phone** | **Varchar** | **13** | **Phone** |
| **Religion** | **Varchar** | **15** | **Religion** |
| **Cast** | **Varchar** | **15** | **Cast** |
| **Blood** | **Varchar** | **3** | **Blood** |
| **Income** | **float** | **10** | **Income** |
| **Dob** | **Date** | **4** | **Date of Birth** |

1. **TABLE: FAMILYTABLE**

**Primary Key: RegNo**

**Description: to store the Family details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **int** | **8** | **Register Number** |
| **FatherName** | **Varchar** | **20** | **Father Name** |
| **FatherOccupation** | **Varchar** | **20** | **Father Occupation** |
| **FatherAddress** | **Varchar** | **75** | **Father Address** |
| **FatherPhone** | **Varchar** | **13** | **Father Phone** |
| **MotherName** | **Varchar** | **20** | **Mother Name** |
| **MotherOccupation** | **Varchar** | **20** | **Mother Occupation** |
| **GuardianName** | **Varchar** | **20** | **Guardian Name** |
| **GuardianAddress** | **Varchar** | **75** | **Guardian Address** |
| **GuardianOccupation** | **Varchar** | **20** | **Guardian Occupation** |
| **GuardianPhone** | **Varchar** | **13** | **Guardian Phone** |
| **Sis** | **Vatchar** | **100** | **About Brothers and Sisters** |

1. **TABLE: EXAMTABLE**

**Primary Key: RegNo**

**Description: to store the Previous Exam details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **int** | **8** | **Register Number** |
| **ExamNo** | **int** | **7** | **Exam No** |
| **Course** | **Varchar** | **6** | **Course** |
| **YearOfPassing** | **int** | **4** | **Year Of Passing** |
| **InstitutionName** | **Varchar** | **30** | **Name of the Institution** |
| **Grade** | **Varchar** | **2** | **Grade** |
| **Percentage** | **int** | **3** | **Percentage** |
| **NoOfChances** | **int** | **1** | **No Of Chances** |

1. **TABLE: PHYSICALTABLE**

**Primary Key: RegNo**

**Description: to store the Physical activities details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **int** | **8** | **Register Number** |
| **CurricularActivities** | **Varchar** | **20** | **Curricular Activities** |

1. **TABLE: INTERNALMARKTABLE**

**Primary Key: RegNo**

**Description: to store the Internal mark details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **int** | **8** | **Register Number** |
| **SubjectName** | **Varchar** | **20** | **Subject Name** |
| **Sem** | **int** | **1** | **Semester** |
| **Course** | **Varchar** | **6** | **Course** |
| **Test1** | **int** | **3** | **Mark of first test** |
| **Test2** | **int** | **3** | **Mark of second test** |
| **Attendance** | **int** | **3** | **Attendance** |
| **Seminar/ viva** | **int** | **3** | **Seminar/ viva** |
| **AdditionalMark** | **int** | **3** | **AdditionalMark** |
| **TotalMark** | **int** | **3** | **TotalMark** |

1. **TABLE: QUESTIONTABLE**

**Primary Key: QuestionId**

**Description: To store the changed username and password.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **QuestionId** | **Int** | **3** | **Question ID** |
| **Question** | **Varchar** | **200** | **password** |
| **StoredProcedure** | **Varchar** | **200** | **Stored Procedure** |

1. **TABLE: ADMINOPTIONSTABLE**

**Description: To store the programme names**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **SISDate** | **Date** | **8** | **Current date** |
| **Mark** | **Int** | **4** | **Maximum Mark** |

1. **TABLE: SISSETTINGSTABLE**

**Description: To store the programme names**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **MaxMark** | **Int** | **4** | **Maximum Mark** |
| **AddMark** | **Int** | **4** | **Additional Mark** |

1. **TABLE: PERFOMANCETABLE**

**Description: To evaluate the performance of the student**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **Varchar** | **8** | **Reg. No of student** |
| **SSLC** | **Int** | **4** | **SSLC Mark** |
| **HSE** | **Int** | **4** | **HSE Mark** |
| **Sem1** | **Int** | **4** | **First Semester Mark** |
| **Sem2** | **Int** | **4** | **Second Semester Mark** |
| **Sem3** | **Int** | **4** | **Third Semester Mark** |
| **Sem4** | **Int** | **4** | **Fourth Semester Mark** |
| **Sem5** | **Int** | **4** | **Fifth Semester Mark** |
| **Sem6** | **Int** | **4** | **Sixth Semester Mark** |

1. **TABLE: ATTACHMENTTABLE**

**Description: To store the attachment details**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **RegNo** | **Varchar** | **8** | **Reg. No of the student** |
| **Programme** | **Varchar** | **20** | **Name of the programme** |

1. **TABLE: PROGRAMMETABLE**

**Description: To store the programme names**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **Programme** | **Varchar** | **20** | **Name of the programme** |

1. **TABLE: RELIGIONTABLE**

**Description: To store the Religion names**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **Religion** | **Varchar** | **20** | **Religion Name** |

1. **TABLE: CASTTABLE**

**Description: To store the programme names**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **Cast** | **Varchar** | **20** | **Caste Name** |

1. **TABLE: SCHOOLTABLE**

**Description: To store the school names**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field name** | **Data Type** | **Size** | **Description** |
| **School** | **Varchar** | **40** | **Name of the programme** |

**3.5 INPUT DESIGN**

Input is the process of converting user inputs to computer based format. The project requires a set of information from the user to prepare a report. In the order, when organized input data are needed.

In the system design phase, the expanded DFD identifies logical data flow, data stores and destination. Input data is collected and organized into groups of similar data. The goal behind designing input data is to make the data entry easy and make it free from logical error. The input entry to all type of clients is the username and password. If they are valid the client is allowed to enter into the software. Refer Appendix 9.1.

Objectives

* To produce a cost-effective method of input
* To achieve the highest possible level of accuracy.
* To ensure that the input is acceptable and understandable

Here in our system , ‘STUDENT INFORMATION SYSTEM’ we can find that we want to get input informations like student details at the time of registarion, and about parents details & mark details in the same manner and various other informations too. With our input design we can say that it is more user friendly as compared to the existing manual system containing paper and pencil operations.

**3.4 OUTPUT DESIGN**

Outputs are the most important direct source of information to the user and to the management. Efficient and eligible output design should improve the system’s relationship with the user and help in decision making,

Output design generally deals with the results generated by the system i.e., reports. These reports can be generated from stored or calculated values. Reports are displayed either as screen window preview or printed form. Most end users will not actually operate the information system or enter data through workstation, but they will use the output from the system.

Outputs from computer systems are required primarily to communicate the results of processing to the user. They are also used to provide a permanent copy of these results for later consultation.

**3.5 MENU DESIGN**

Menus are designed for the manipulation of the screen. Menu is universal interface for any type of environment. The menu allows the user’s choice of response but reduce the chances of error in data.

There is a main window, which contain main menu. By

using the appropriate menu option we select screens or

windows for input data entry. Access protection is achieved

through the password. The user can enter into main window

only by giving the correct user name and password.

Menu provides a set of options on the screen. Cursor

movements can select the options. The application consists of

number of data manipulation screens. We have 3-4 menu items like

file, reports, … By clicking in the options we can go to the desired

form.