SYSTEM DESIGN

**3**. **System Design**

* 1. **Introduction**
* System design is the process of defining the architecture, module interfaces and data for a system to satisfy specified requirements.
* The purpose of the design phase is to plan the solution of the problem specified by the requirement documents.
* This is the first step that moving from the problem domain to the solution domain.
* The design of the system is essentially a blueprint or a plan for a solution for the system.
  1. **Assumptions And Constraints**

An assumption is a condition you think to be true and a constraints is fixed limitations of project development.

* All the functional requirement collected from client are sufficient for the project life-cycle.
* All the Nonfunctional and specific requirement specified in SRS well enough for the development of system. Time constraint.
  1. **Functional Decomposition**

Functional decomposition is the process of taking a complex process and breaking it down into smaller, simpler parts. Using functional decomposition large or complex functionalities are more easily understood. It is mainly used during project analysis phase, so each can be viewed as software. So this has module with some sub modules.

**3.3.1 System Software Architecture**

**COLLEGE ACTIVITY MANAGEMENT SYSTEM**

Staff

Admin

Login

View Activity

View Activity

Manage Student

View Attendance

Manage Association

Add Student

Add Association

Update Student

Update Association

Delete Student

Delete Association

Record Attendance

Manage Staff

Manage Activity

Add Activity

Update Activity

Delete Activity

Add Staff

Update Staff

Delete Staff

Edit Profile

**Fig(3.1) System Software Architecture** **3.3.2 System Technical Architecture**

**Data Management Tier**

**Application Tier**

Internet

Chrome

Mozilla Client

**Presentation Tier**

Database Server

Web Server

**Fig(3.2) System Technical Architecture**

**3.3.3 System Hardware Architecture**

Display Unit

Database

Computer

Standard input Device

Standard Device

**Fig(3.3) System Hardware Architecture**

**3.4 Description of Program**

**3.4.1 Context Flow Diagram(CFD)**

In CFD entire system is considered as a single process. Context flow diagram shows input and output of the system. It shows all the external entities that interact with system and how the data flows between these external entities and system.

**Admin**

Manage Staff Request

Manage Association Response

Manage Staff Response

Manage Association Request

View Attendance Response

View Attendance Request

View Activity Request

View Activity Response

Manage Student Request

View Activity Request

View Activity Response

Record Attendance Response

Manage Student Response

Record Attendance Request

Manage Activity Request

Manage Activity Response

Edit Profile Request

Edit Profile Response

**Staff**

**Fig(3.4) Context Flow Diagram**

|  |  |  |
| --- | --- | --- |
| Symbols | Name | Description |
|  | Process | It performs transformation of data from one state to another. |
|  | Source /Sink | It represents the external entity that may be either source or Sink. |
|  | Flow of data | It represents the flow of data from source to destination. |
|  | Data Source/Data storage | It is the place where data is stored |

**Table 3.5**

* + 1. **Data Flow Diagram(DFDs 3-Level 0,Level 1,Level 2)**

**Data Flow Diagram(DFD)**

Data flow diagram shows the flow of data through system. Data flow diagram is also called as data flow graphs. It views system as a function that transforms the input into desire output. It aims to capture the transformation that taken place within a system to the input data so that eventually the output data is produced.

**Level-0 DFD**

**Fig(3.6) Level-0 DFD**

user

**3.5 Description of Components**

* + 1. **Login**

user

invalid

Message

User id, password

read

user

valid

**Fig(3.7)** **Login**

**3.5.1.1 Input:** user id, password.

**3.5.1.2 Process Definition:** Authenticates the input details.

**3.5.1.3 Output:** Successful or unsuccessful login message will be displayed.

**3.5.1.4 Interface with other functional component:** Independent module.

**3.5.1.5 Resource Allocation:** admin or staff module.

**3.5.1.6 User interface:** Label, textbox, button.

**3.5.2 Admin**

Admin

**Fig(3.8) Admin**

**3.5.2.1 View Activity**

Activity

Activity id

Activity id

Admin

Activity detail

**Fig(3.9) View Activity**

**3.5.2.1.1 Input:** Activity id.

**3.5.2.1.2 Process Definition:** Display Activity details.

**3.5.2.1.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.1.4 Interface with other functional component:** Independent module.

**3.5.2.1.5 Resource Allocation:** activity.

**3.5.2.1.6 User interface**: Label, textbox, button.

**3.5.2.2 View Attendance**

Attendance

Association id

Association details

Association id

Admin

**Fig(3.10) View Attendance**

**3.5.2.2.1 Input:** Association id.

**3.5.2.2.2 Process Definition:** Display attendance details.

**3.5.2.2.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.2.4 Interface with other functional component:** Independent module.

**3.5.2.2.5 Resource Allocation:** attendance.

**3.5.2.2.6 User interface**: Label, textbox, button.

**3.5.2.3 Manage Association**

**3.5.2.3.1 Add Association**

admin

Message

invalid

Association details

Association details

valid

association

Message

**Fig(3.11) Add Association**

**3.5.2.3.1.1 Input:** Association name, association id, association icon.

**3.5.2.3.1.2 Process Definition:** Add the association record to database.

**3.5.2.3.1.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.3.1.4 Interface with other functional component:** Independent module.

**3.5.2.3.1.5 Resource Allocation:** association.

**3.5.2.3.1.6 User interface:** Label, textbox, button.

**3.5.2.3.2 Update Association**

Association details

admin

association

Message

Association id

**Fig(3.12) Update Association**

**3.5.2.3.2.1 Input:** Association id.

**3.5.2.3.2.2 Process Definition:** Update association record stored in database.

**3.5.2.3.2.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.3.2.4 Interface with other functional component:** Independent module.

**3.5.2.3.2.5 Resource Allocation:** association.

**3.5.2.3.2.6 User interface:** Label, textbox, button.

**3.5.2.3.3 Delete Association**

association id

Association details

association

admin

Message

**Fig(3.13) Delete Association**

**3.5.2.3.3.1 Input:** Association id.

**3.5.2.3.3.2 Process Definition:** Delete association record from database.

**3.5.2.3.3.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.3.3.4 Interface with other functional component:** Independent module.

**3.5.2.3.3.5 Resource Allocation:** association.

**3.5.2.3.3.6 User interface:** Label, textbox, button.

**3.5.2.4 Manage Staff**

**3.5.2.4.1 Add staff**

Message

invalid

staff details

staff details

staff

admin

valid

Message

**Fig(3.14) Add Staff**

**3.5.2.4.1.1 Input:** Staff name**,** staff id, password, email, contact no, department, association id.

**3.5.2.4.1.2 Process Definition:** Validates the inputted details and store it into database.

**3.5.2.4.1.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.4.1.4 Interface with other functional component:** Independent module.

**3.5.2.4.1.5 Resource Allocation:** Staff.

**3.5.2.4.1.6 User interface:** Label, textbox, button.

**3.5.2.4.2 Update Staff**

Staff details

Staff id

staff

admin

Message

**Fig(3.15) Update Staff**

**3.5.2.4.2.1 Input:** Staff id.

**3.5.2.4.2.2 Process Definition:**

**3.5.2.4.2.3 Output:** Update staff record stored in database.

**3.5.2.4.2.4 Interface with other functional component:** Independent module.

**3.5.2.4.2.5 Resource Allocation:** staff.

**3.5.2.4.2.6 User interface:** Label, textbox, button.

**3.5.2.4.3 Delete Staff**

Staff id

staff

admin

staff details

Message

**Fig(3.16) Delete Staff**

**3.5.2.4.3.1 Input:** Staff id.

**3.5.2.4.3.2 Process Definition:** Delete staff record from database.

**3.5.2.4.3.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.2.4.3.4 Interface with other functional component:** Independent module.

**3.5.2.4.3.5 Resource Allocation:** staff.

**3.5.2.4.3.6 User interface:** Label, textbox, button.

**3.5.3 Staff**

staff

**Fig(3.17) Staff**

**3.5.3.1 View Activity**

Admin

Activity detail

Activity id

staff id

Activity

**Fig(3.18) View Activity**

**3.5.3.1.1 Input:** Activity id.

**3.5.3.1.2 Process Definition:** Retrieve the information from the database.

**3.5.3.1.3 Output:** Display the activity details.

**3.5.3.1.4 Interface with other functional component:** Independent module.

**3.5.3.1.5 Resource Allocation:** activity.

**3.5.3.1.6 User interface:** Label, textbox, button.

**3.5.3.2 Manage Student**

**3.5.3.2.1 Add Student**

student

staff

Message

Message

invalid

valid

student details

student details

**Fig(3.19) Add Student**

**3.5.3.2.1.1 Input:** Student id, student name, class, association id.

**3.5.3.2.1.2 Process Definition:** Validates the inputted details and store it into database. .

**3.5.3.2.1.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.2.1.4 Interface with other functional component:** Independent module.

**3.5.3.2.1.5 Resource Allocation:** student.

**3.5.3.2.1.6 User interface:** Label, textbox, button.

**3.5.3.2.2 Update Student**

Student details

Message

student

staff

Student id

**Fig(3.20) Update Student**

**3.5.3.2.2.1 Input:** Student id.

**3.5.3.2.2.2 Process Definition:** Update student record in database.

**3.5.3.2.2.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.2.2.4 Interface with other functional component:** Independent module.

**3.5.3.2.2.5 Resource Allocation:** student.

**3.5.3.2.2.6 User interface:** Label, textbox, button. **3.5.3.2.3 Delete Student**

Student id

student

staff

Student details

Message

**Fig(3.21) Delete Student**

**3.5.3.2.3.1 Input:** Student id.

**3.5.3.2.3.2 Process Definition:** Deleting student record from database.

**3.5.3.2.3.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.2.3.4 Interface with other functional component:** Independent module.

**3.5.3.2.3.5 Resource Allocation:** student.

**3.5.3.2.3.6 User interface:** Label, textbox, button.

**3.5.3.3 Record Attendance**

activity id

Staff id

staff

Message

attendance

student

valid

**Fig(3.22) Record Attendance**

**3.5.3.3.1 Input:** Association id.

**3.5.3.3.2 Process Definition:** Record Attendance in database.

**3.5.3.3.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.3.4 Interface with other functional component:** Independent module.

**3.5.3.3.5 Resource Allocation:** Attendance.

**3.5.3.4 Manage Activity**

**3.5.3.4.1 Add Activity**

invalid

valid

activity details

activity details

activity

staff

Message

Message

**Fig(3.23) Add Activity**

**3.5.3.4.1.1 Input:** Activity id, activity name, description, image path, date, place, association id.

**3.5.3.4.1.2 Process Definition:** Add activity record to database.

**3.5.3.4.1.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.4.1.4 Interface with other functional component:** Independent module.

**3.5.3.4.1.5 Resource Allocation:** activity.

**3.5.3.4.1.6 User interface:** Label, textbox, button.

**3.5.3.4.2 Update Activity**

Activity details

activity

staff

Message

Activity id

**Fig(3.24) Update Activity**

**3.5.3.4.2.1 Input:** Activity id.

**3.5.3.4.2.2 Process Definition:** Update activity record in database.

**3.5.3.4.2.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.4.2.4 Interface with other functional component:** Independent module.

**3.5.3.4.2.5 Resource Allocation:** activity.

**3.5.3.4.2.6 User interface:** Label, textbox, button.

**3.5.3.4.3 Delete Activity**

Activity id

Activity details

activity

staff

Message

**Fig(3.25) Delete Activity**

**3.5.3.4.3.1 Input:** Activity id.

**3.5.3.4.3.2 Process Definition:** Delete the activity record from database.

**3.5.3.4.3.3 Output:** Successful or unsuccessful message will be displayed.

**3.5.3.4.3.4 Interface with other functional component:** Independent module.

**3.5.3.4.3.5 Resource Allocation:** activity.

**3.5.3.4.3.6 User interface:** Label, textbox, button.

**3.5.3.5 Edit Profile**

Staff details

staff

staff

Message

Staff id

**Fig(3.26) Edit Profile**

**3.5.3.5.1 Input:** staff id.

**3.5.3.5.2 Process Definition:** Update staff record in database.

**3.5.3.5.3 Output:** Successful or unsuccessful message will be displayed..

**3.5.3.5.4 Interface with other functional component:** Independent module.

**3.5.3.5.5 Resource Allocation:** staff.

**3.5.3.5.6 User interface:** Label, textbox, button.