**High Level Design Documentation**

**of**

**the project on**

**Online Book Shop System**

Submitted by

Paramita

Registered email: [paramitapp10@gmail.com](mailto:paramitapp10@gmail.com)

|  |
| --- |
| [***Abstract 2***](#_Toc128762721)  [***1*** ***Introduction 3***](#_Toc128762722)  [*1.1* *Need of a High-Level Design Document: 3*](#_Toc128762723)  [***1.3.*** ***Project Objectives*** *4*](#_Toc128762724)  [**2.2.** **Software Requirements** 5](#_Toc128762725)  [***3.*** ***. SOFTWARE DEVELOPMENT METHODOLOGY 6***](#_Toc128762726)  [**3.1.** **SOFTWARE LIFECYCLE MODEL** 6](#_Toc128762727)  [**1.1.** SOFTWARE REQUIREMENTS SPECIFICATION 8](#_Toc128762728)  [**2.** PROJECT PLANNING AND SCHEDULING 14](#_Toc128762729)  [***3.*** ***ANALYSIS 18***](#_Toc128762730)  [**4.3.** STATE TRANSITION DIAGRAM 41](#_Toc128762731)  [**4.5.** DATA DICTIONARY : (FOR DATABASE : iqtest) 43](#_Toc128762732)  [**1.** system\_admin 43](#_Toc128762733) |
|  |

Abstract

Books have long been the best friend of the civilized society. Apart from providing knowledge, it is the propagation of communication that transcends into an intellectual and psychological broadening of the minds of the superior species, the humans. Most printed material have opened new domains of evolution, ideas, research, and a barter of information. The Online book shop carries the tradition of a better improved society that chooses to buy books, trace and track readers as well as buyer-sellers to interact.

The system is primarily an eCommerce application, that is a mega Book mart intended to connect anybody and everybody interested in reading in print. The age-old tendency to widen view with reading is being enhanced by the system.

The system connects people who are book collectors and often feel the necessity to lend their books in exchange of money to people who might carry on their legacy. In a scenario of recent trends to read pdf’s and rely on online materials, the system demands commendable respect as it tends to connect readers across the globe, online.

1. Introduction
   1. Need of a High-Level Design Document:

The high-level Design Document marks out the software requirements of the application to be developed. High level designing contains the overview of the architecture to be developed. The HLD performs the requirements analysis and presents the Software Requirements Specifications. High level designing aims at marking the Hardware and software interfaces to be used in ther project. It consists of the algorithm and details about classes/ methods to achieve the required functionality in terms of business requirements. The Low Levell design aims to achieve the functional and non-functional requirements by giving a technical roadmap for it. The document divided into various sections to make the code reusable and scalable.

The main objective of the project is to make a connection between the people who have a demand for books and those who need the books.

This project shall be delivered in a manner that suggestive changes may be easily implemented without disturbing the already existing data..

* 1. **Definitions**
     + **SRS-Software Requirements Specification**
     + **Firewall –Functionality that can allow or block certain ports and addresses.**
     + **IPTables – A firewall built into the Linux kernel.** 
       - **IPForwarding / IPMasquerading – The ability to forward traffic.**
       - **JDBC – A possible Java-based interface between IPTables and the Database.**
       - **JSP – The language that will be used for displaying user history and administrative functionality.**
       - **Tomcat – a free, open-source implementation of Java Servlet and JavaServer Pages technologies developed under the Jakarta project at the Apache Software Foundation.**
       - **Apache - An open source Web server**
     + **ER – Entity Relation Diagram**
     + **CBQ –Class-Based Queuing. Limits bandwidth at the IP/port level.** 
       - **Kernel – Core of an operating system, a kernel manages the machine’s hardware resources (including the processor and the memory), and provides and controls the way any other software component can access these resources**
     + **DHCP – (Dynamic Host Configuration Protocol) – This is a protocol that lets network administrators centrally manage and automate the assignment of IP Addresses on the corporate network.**
* **DFD - Data Flow Diagram**
  + - **Gateway –Bridges the gap between the internet and a local network.**

**Overview**

* + The HLD will:
    - present all of the design aspects and define them in detail
    - describe the user interface being implemented
    - describe the hardware and software interfaces
    - describe the performance requirements
    - include design features and the architecture of the project
    - list and describe the non-functional attributes like:
* security
* reliability
* maintainability
* portability
* reusability
* application compatibility
* resource utilization
* serviceability
  1. **Project Objectives**

**1.2.1. Admin Objectives**

This software system will be a Web application This system will be designed to locate all interested readers to find their books easily as well as those who have hold on to resources, to share it.

In the application, registered users will be given a chance to get hold of books of their interest in various formats and from most of the domains.

Books may be bought and sold likewise. Books may be acquired in physical form in hardcover or as online pdf versions. Other formats of acquirement of physical copies with a compromise on the covering and printing formats may be available for books.

Old book acquirement is a special feature of the system. Donors may directly send their books to the onsite address of the shop or may make available .pdf, .png of their acquired resources online. They would also be given a chance to sell the physical copies at their onsite address, if deemed fit by the owners of the system.

The overall effort of the system is to enhance the habit of self-study and an appreciation to the effort the human race has made to preserve its evolution in languages and its preservation in the form of printed books.

**2**. **HARDWARE AND SOFTWARE REQUIREMENTS**

* 1. **Hardware Requirements**

 Processor: Intel Pentium microprocessor with RYZEN

 Main memory: 512 MB

 Hard disk : 256 MB required

 Keyboard: Standard

 Monitor: 600x800 Resolution or above

 Mouse: Scroll

 Secondary storage: 32GB

* 1. **Software Requirements**
     1. Tools and platforms used

֎ Operating System: Windows10

֎ Front End: HTML, CSS, JAVA, JSP, JS

֎ Back End: MySQL[ WorkBench] 8.0 CE

֎ Platform: ECLIPSE IDE[2022-09]

֎ Language: JAVA, JS, JSP

* + 1. Software interfaces
* Application: Eclipse IDE[2022-09] for javaEE]
* Server: Tomcat 9.0
* Database: MySQl
* Browser : FIREFOX
* Additional API : MS OFFICE

1. **. SOFTWARE DEVELOPMENT METHODOLOGY**
   1. **SOFTWARE LIFECYCLE MODEL**

**The software to be developed depends on the series of identifiable stages that would eventually lead to the product. The diagrammatic representation would follow in building the logical framework. It** would be based on the requirements analysis and the design phase. The proposed software is planned after the requirements analysis and therefore may be developed by means of the iterative waterfall model. In order to give it a stage to analyse the effects of the prior stage, the iterative approach has been followed.

REQUIREMENTS ANALYSIS

SYSTEM ANALYSIS

SOFTWARE DESIGN

CODING

DEPLOYMENT

MAINTENANCE

TESTING

1. **REQUIREMENTS ANALYSIS**
   1. **PROBLEM SPECIFICATION**

The system to be developed is based on online application development of a book shop. The catalogue of books is made available to prospective clients.

* Clients need to register on the platform to view the different available catalogues.
* After a successful login clients are required to choose domains and subjects of their choice.
* This leads to the choice of old vs new books.
* New Books are available in printed and different formats.
* Physical copies as well as online pdf fomats are available. Some material is available in .png formats.
* Old Books may be ordered according to the residence of the clients and the prospective seller, if the physical copy of the book is not available to the system admin.
* All Readers can be a prospective seller as well.
* They are directed according to their personal choices to access the payment portal and webpages meant for the same.
* All users of the system are requested to follow guidelines and updated information on the applications social media pages
  1. **FEASIBILITY STUDY:** The development of any Software depends on the fact that whether it is feasible for development or not. This study is done for the various factors which might affect the software development, deployment and maintenance. It is also targeted for Customer Relationship Management in future.

**4.2.1. TECHNICAL FEASIBILITY:**

It includes the hardware software and other technical requirements of the system. It would require at least 256MB of RAM for its smooth functioning. The System requirements are to be fulfilled by the PC on which the system is to be primarily developed. The Software is to be developed in eclipse IDE as a Dynamic Web based Java2EE project. Java, JSP, and Java Script are to be used in Front End. Backend Database is managed in Container Database mysql using the MySQL Workbench. The Intel microprocessor with Ryzen is used in the PC.

The Software is to be managed and maintained after deployment

on an iterative basis,

i.e. updating requirements according to changing needs. As maintainability is easy and development is based on technical updations of academics and availability, the Software is technically feasible. The Software is least prone to attacks as the data involves each individual personally. Less threat for virus and worms are expected as customized data is only to be accessed by registered and authenticated individuals.

* + 1. **SOCIAL FEASIBILITY:** This software is expected to have deep social implications. Society and its improvement is dependent on the academic achievements in recent times. If individuals can have easy and better access to different printed formats of knowledge share, they might utilize their time better. Students can contribute better if they can refer up subjects according to their choices. The habit of reading and brain development has long contributed in distinguishing the human kind as superior life forms.
    2. **ECONOMIC FEASIBILITY:** The users are provided with a free preview to all books once they successfully register in the system. The payment is only to be made once they decide on procuring books in the system. This has been made keeping in view the huge number of users who use a website at the first instance for something they can acquire for free. However, there may be users with a vivid approach who might be interested in actual physical purchase or sale. abilities for a particular domain. These interested users are provided with paid services for earnings of the websites development as well as connecting inanimate resources with human resource.
    3. **LEGAL FEASIBILITY:**

The Legal feasibility of the system development is based on whether an individual should use the system with a definite purpose. As the registration of the user is done on his/ her own discretion with an acceptance of an Agreement provided by the website developers, no legal action may be taken against the System. The selling of books on the admin site or uploading requests for procurement is based on user discretion and acceptance of full responsibility, the system stands free of any malpractice conducted on physical acquirement of printed material decisions.

The feasibility study conducted on the system has helped its development and further maintenance.

* 1. **SOFTWARE REQUIREMENTS SPECIFICATION**

This part of the document provides a comprehensive description of the Software to be developed by the system. The different subsections provide the information of the Software and hardware to be used by the system.

**4.1.1. PURPOSE**: The SRS aims at the development of the system requirements. The Online Book Shop aims at bringing the Purchasers, Buyers, readers and authors under one organization.

**The** vision of the system is an unified platform of printed media in storable format.

**The mission** is to strive towards the goal carrying All new publications and old books along.

* + 1. **SCOPE:** The system may be used by an individual after registration to determine his/ her interest in books.
* The report is generated for the system in the form of a readers interest, orders and reading abilities. The Webpage of Readers profile is maintained for the purpose.
* The Report generated would be a monthly and weekly as well as annual analysis of reading habits. These would be valued by employers or other organisations to form an opinion of a person based on recognized standards.
* The suggestions for individuals would also be based on search or recent trends
* . ABBREVIATIONS:

|  |  |
| --- | --- |
| SRS | Software Requirements Specification |
| DFD | Data Flow Diagram |
| ERD | Entity Relationship Diagram |
| ID | Identification Definition |
| OBS | Online Book Shop |
| PP | Payment Portal |
| IDE | Integrated Development Environment |

Table : 5.1.

**Specification: IEEE STD 830-1993**

* + 1. **FUNCTIONAL REQUIREMENTS:**

This gives specific the system is supposed to behave after deployment in the virtual machine. It also gives what inputs are provided to which process and what is the expected output of each. It also denotes how the system might behave and what are the specific data manipulations and calculations.

* + - 1. User perspective:
      2. 1. User Registration on the system.

Input: Providing user details. Output: User ID.

* + - * 1. User login to the system.

Input :User ID and password

Output : Forwarding to the Catalogue Overview page.

* + - * 1. User profile set up.

Input : Uploading of Photo and files related to academics, work experience, writing and reading abilities.

. Output : User is given a chance to download profile as a further laurel in jobs, career and other areas of interest.

4.1.3.1.3. Catalogue overview page

Input : Choice of subjects, primary and secondary interests are to filled in popups.

Output : Detailed pages on user Choice opens.

* + - * 1. NewBooksPage

Input : Give Answres as Choice/text for questions Output : Save and Next

* + - * 1. Old Books Page

Input : User ID

Output : Obtained Score.

* + - * 1. User customized Choice Screen.

Input : Consent for Customisation. Output : Redirection to payment portal.

* + - * 1. User Payment portal.

Input : Payment mode and card details.

Output : Confirmation of payment and redirection to choice of test

screen.

* + - * 1. User customized test screens

Input : Answers as Choice /text. Output : save and next

* + - * 1. User Score as 2x2 SWOT

Input : user ID Ouput : Score Card

* + - * 1. User feedback

Input : feedback on system as text. Output : Greetings

* + - 1. Admin Perspective:
         1. Admin login

Input : admin ID and password.

Output : admin access to system with successful login

* + - * 1. Admin dashboard

Input : addition of new tests or updation Output : updation of system.

* + - * 1. Authentication of users

Input : checking user ID and password with 2 factor authentication Output: Availability of system to authenticated users.

* + - * 1. Generation of General Score

Input: answer choice of users on test screen

Output : Generating score with set rules and marks.

* + - * 1. Generation of SWOT matrix for Customised users

Input : answers of users on customized test screens

Output : generating SWOT matrix according to given tests

* + - * 1. Redirecting users of customized tests to Educational and training sites. Input : User Score on specific areas of tests

Output: Redirected user

**NON FUNCTIONAL REQUIREMENTS:** These are directly related to the functioning of the system. The main constraints of the system are

* **Authentication of users :** This feature will provide the login to user profile only when the user inputs registered userID, password and the mobile number registered is validated with a button sent to it for 2 way authentication**.**
* **Presentation of flawless testing screens:** This would depend on the IDE used, wifi Connection and speed. This would also depend on the SceneBuilder which would help build the Graphics used in System.
* **Generation of authentic score :** This would depend on the logic of Calculation and the access of data from Database. The feature of userID would allow the right user to receive the score.
  + - 1. Hardware interface:
* Screen Resolution of 600x800.
* Mouse for scroll
* PC or Laptop with WiFi Connection for the Web based project.
  + - 1. Software Interfaces:

֎MySQL WorkBench 8.0 CE

֎ Eclipse IDE for developing Code and webapps

֎ Windows 10 OS

* + - 1. Communications Interfaces: None

5.4.4.5. Performance requirements: Http will be used



* + 1. Software System attributes:

Security : Achieved with authentication and the 7-Zip (Encryption tool ) downloaded with Softwares, provide security features and do not allow intrution into the System.

Maintainability: This is achieved by updating the system on the basis of present requirements and implementation of Client demand techniques, as gathered from feedback of users.

Portability : This feature is achieved by using JAVA as a programming language. The OOPS feature helps the system to have a portable feature. It is therefore made to run on any Operating System on any machine.

1. **PROJECT PLANNING AND SCHEDULING**

|  |  |  |
| --- | --- | --- |
| **NAME OF PHASES SUB PHASES OR DESCRIPTION** | | |
| **Requirements analysis** | Problem definition |  |
|  | Feasibility study |  |
|  | Software requirements analysis |  |
| **Milestone : Successful SRS and Feasible System. Proceeding to Designing the System** | | |
| **System analysis** | Project planning and  scheduling |  |
|  | System DFD |  |
|  | System Designing |  |
|  | Structure designing |  |
| **Milestone :Completion of Design. Proceed to code the System** | | |
| **Coding** | Coding with Comments |  |
|  | Code Efficiency |  |
|  | Error handling |  |
|  | Parameter Passing |  |
|  | Validation Checking |  |
| Milestone : Error free Code | | |
| Testing | Integrated Testing |  |
|  | System Testing |  |
|  | Debugging |  |
| **Milestone : Successful Testing** | | |
| **Implementation and Maintenance** | Deployment and improvement |  |
| Milestone : Successful Implementation | | |
|  | | |

Table:6.1

* 1. **GANTT CHART:** A horizontal bar chart which visually represents a project plan over time. The chart shows status of each task in the project.

|  |  |  |
| --- | --- | --- |
| TASK | START DATE | DAYS TO COMPLETE |
| Requirements analysis | **22nd – 23rd February, 2023** | **2 days** |
| System Analysis | **23rd March** | **1 day** |
| System Design | **24th March** | **1 day** |
| Coding | **25th March- 1st March** | **5 days** |
| Testing | **1st - 3rd March, 2023** | **2 days** |
| Build | **4th March, 2023** | **1 day** |

Table:6.2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22nd | **22nd Feb.** | | 23rd |  | | **23rdFeb,** | **25th Feb.** | **26th Feb.** | **28th Feb.** | | **1st March** | **2nd Mar.** | **3rd March** | | **4th march** | **4th March** | |
|  |  |  | |  |  | |
|  | **Feb.** |  | |  |  | |
| **Requireme nts Analysis** |  | |  |  | |  |  |  |  | |  |  |  | |  |  | |
|  |  |
| **System Analysis** |  | |  |  | |  |  |  |  | |  |  |  | |  |  | |
| **System Design** |  | |  |  |  |  |  |  |  | |  |  |  | |  |  | |
| **Coding** |  | |  |  | |  | | | |  |  |  |  | |  |  | |
| **Testing** |  | |  |  | |  |  |  |  | |  | | |  |  |  | |
| **Build** |  | |  | | |  |  |  |  | |  |  |  | |  | |  |

Gantt Chart

Fig. : 6.1

* 1. **Pert Chart:** A PERT Chart is a project management tool that provides a graphical representation of a project’s timeline. The **Program Evaluation Review Technique** breaks down the individual tasks for project analysis.

start

1 1 day

5 days

1 day

Days

1 day

Days

1 day

Days

PERT

Fig. 6.2

stop

1 day

Days

Build

**4th March, 2023**

Coding

**25th March- 1st March**

Testing

**1st - 3rd March,2023**J

System design

**24th March**

Requirements analysis

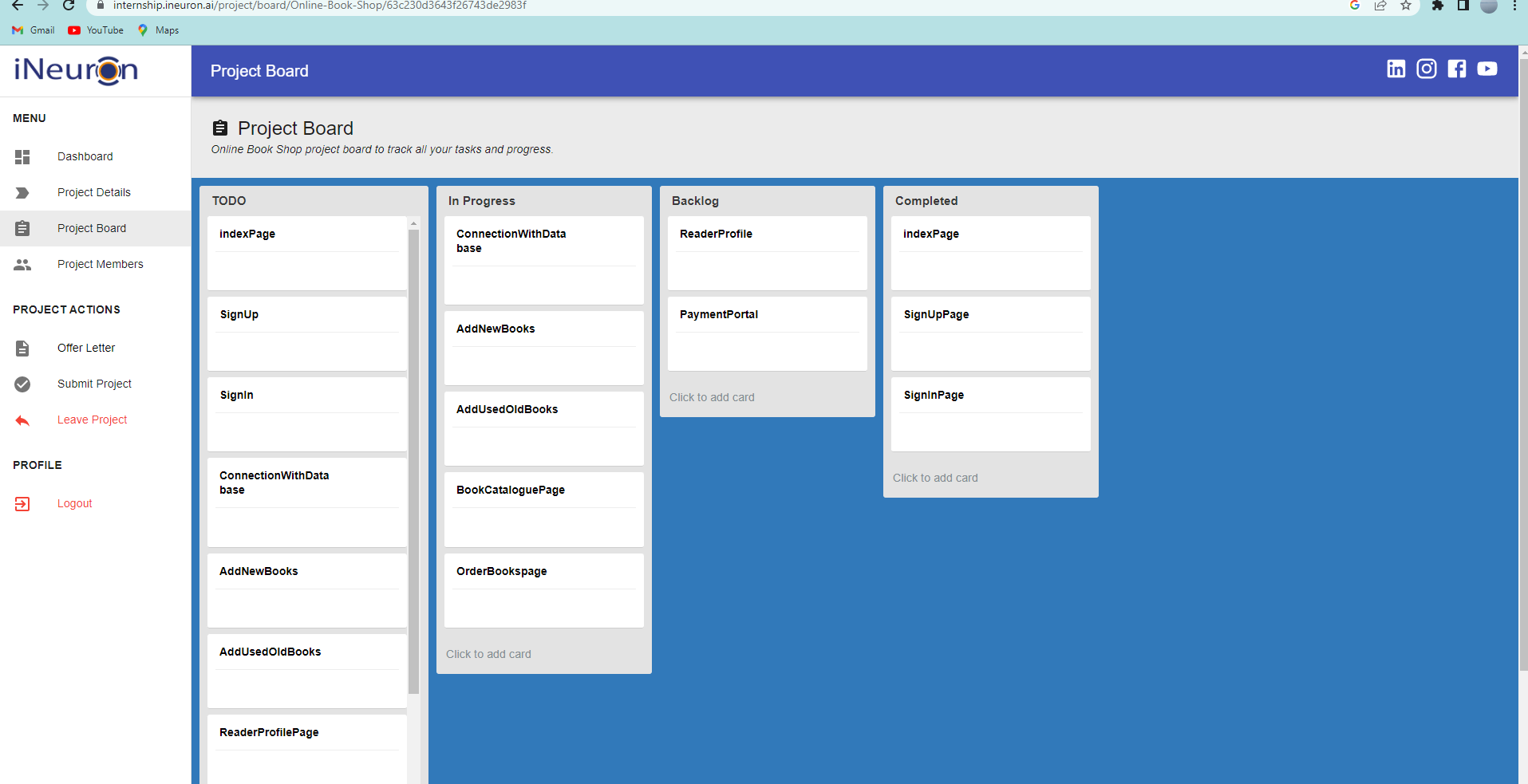
**22nd – 23rd February, 2023**

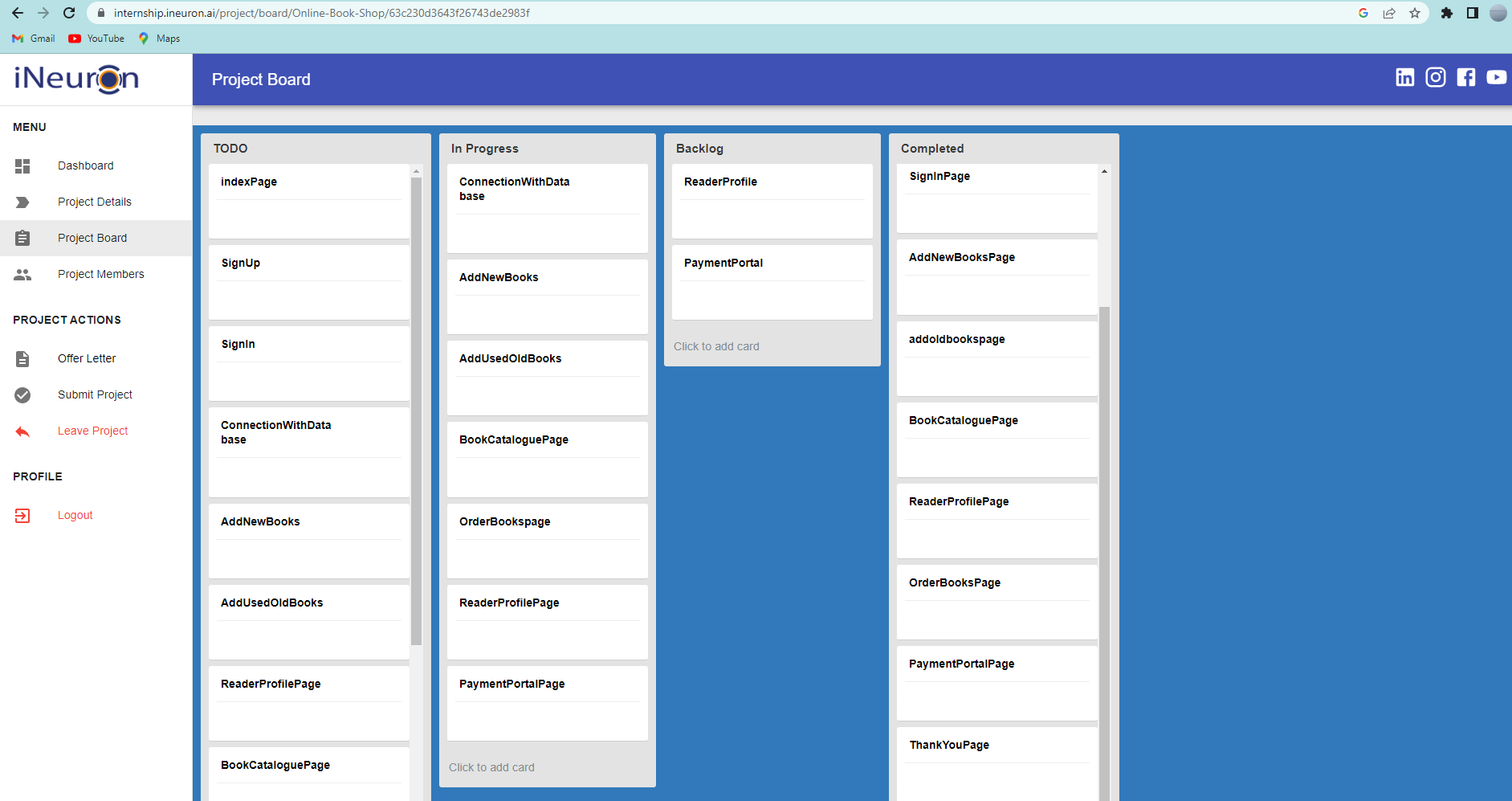
System analysis

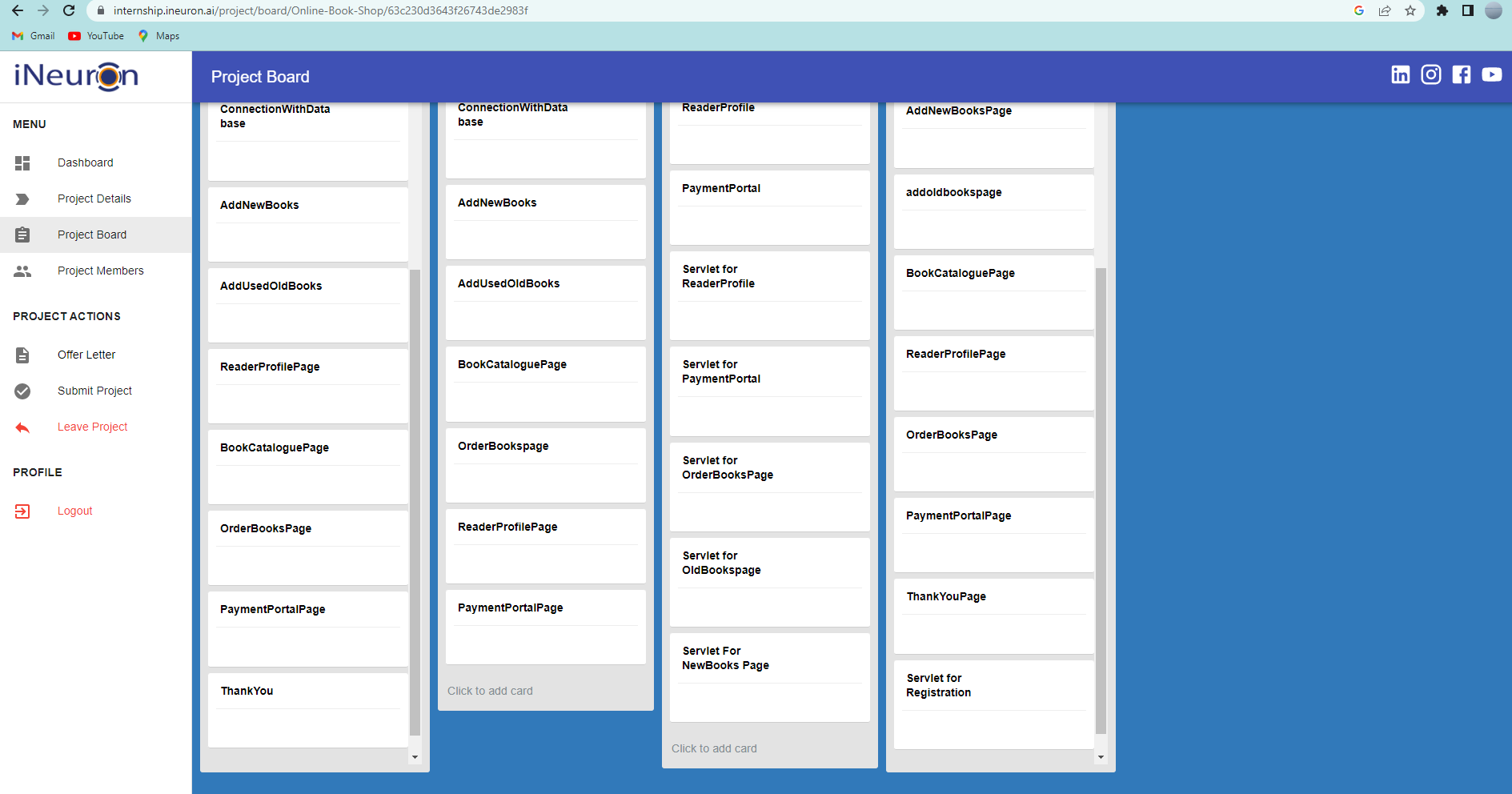
**23rd March**

* 1. **Kanban board**

**According to The ineuron IntershipPortal guidelines a Kanban Board is provided for project scheduling and marking of completion of the project webpages. All Webpages were designed following a schedule. The Kanban Board gives an opportunity to schedule tasks and keep track of backlogs and completed tasks. The board does not allow the user to keep track of every proceeding. The dates are not reflected each time after login. The testing after every phase puts the burden of ultimate testing at the maintenance phase.**







1. ANALYSIS
   1. **DATA FLOW DIAGRAMS (DFD**): Drawn to show the flow of data between processes and entities of a System. It has no control flow. It is a mapping to demonstrate the flow of input and output from a process or entity.
      1. **CONTEXT LEVEL (ZERO LEVEL) DFD OF THE SYSTEM**

acc\_hname,card\_no,cvv

SYSTEM

* + 1. **LEVEL 1 DFD**

1.0.

ADMIN

User\_details

user\_email, password

system\_admin

user id, pass

userid, pass word approv

User\_details (name,email, address,phn.)

System Registration

(name,email,

address,phn.)

email,pass

user email

,password.

al

2.0.

add que

3.0.

**General module test**

user

\_ans add ques

gt\_date iqexamcode

add ques+ add ans

**Gen\_te**

7.0

**add\_ques**

\_ans

user email

,password.

feed back

Payment

confirm\_ msg

System login

**4.0.**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **users** |  |

Payment for customised test

score card for gentest

**questions**

USERS

acc\_hname,card\_no,cvv

payment\_details

choice+ans

**answers**

+correct\_ch

add ans

6.0.

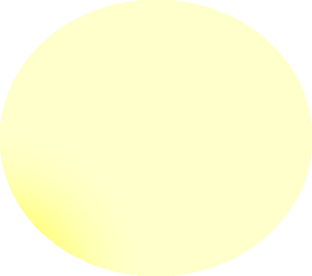
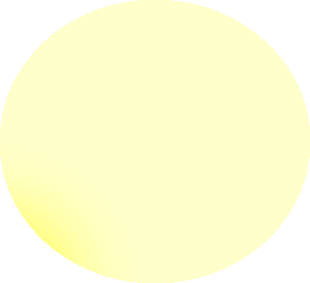
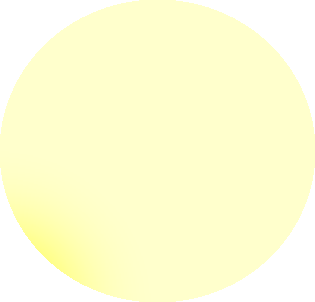
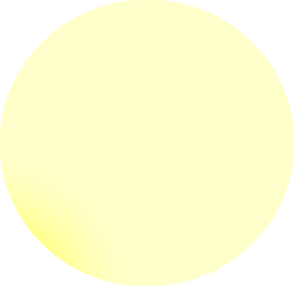
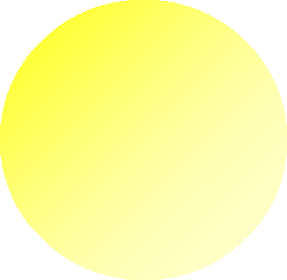
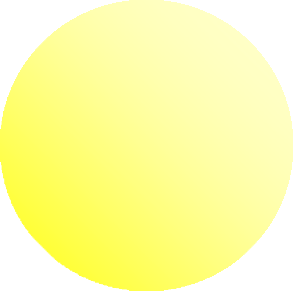
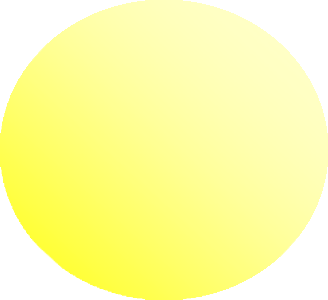
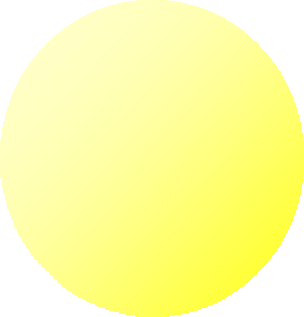
**Cus\_test**

ct\_date

5.0.

**Customized module test**

ctestcod e



* + 1. LEVEL 2 DFD



* + - 1. **System Registration**

Provide registration screen to enter details

1.1.

**Opt for registration**

Provide registration screen to enter details

SYSTEM ADMIN

1.3.

Confirm

email

admin

\_id

,pass

email,,phn, password

userid

system\_admin

**1.2.**

Enter user Details

Check pass word

user\_name,user\_add., user\_phn.,user\_email password

**users**

user\_name,user

\_add.,user\_phn., user\_email,pass

email,add.

,phn,pass

login screen

1.4.

**USERS**

**userid generation**

userid

Presses login button

1.5.

* + - 1. System Login(LEVEL 2 DFD)

Provides login screen

user\_email, password

2.1.

**User login submit**

user\_email, password

user\_ email

,pass word

**SYSTEM ADMIN**

2.2.

Login success msg

Login failed msg

**L**

P

Fig. 7.4.



Start test button

* + - 1. GENERAL MODULE TEST(LEVEL 2 DFD)

userid,gt- id,date

Correct

\_ch for MCQ

test

Ques

+opti ons for MCQ

Presses start button

3.5

**MCQ**

Date and time of test

Ques+ options

3.1.

**Start test**

Digital clock timer and first screen

**SYSTEM ADMIN**

test\_id, dur

Starts timer

,prese nts 1st screen

3.2.

**Match pattern**

answers

Correct

\_ch for pattern

Correct

\_ch for series

3.3.

plays game

3.4.

**game**



userid,date, gt\_id,mark, score

score\_card

Generate IQ Score

IQ

test score

feedback

feedback

**3.8.**

|  |  |  |
| --- | --- | --- |
|  |  | users |

**feedack**

Fig. 7.5.

20

* + - 1. **PAYMENT PORTAL(LEVEL 2 DFD**) userid



test\_id

**SYSTEM ADMIN**

,ct\_id

4.2.

**Choice of payment**

userid, test\_id

,ct\_id, ct\_na me

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | system\_ adm | in |

**4.1.**

**Choice of No. of Customised tests**

userid,test\_id,ct\_id, ct\_name

4.3.

**Choice of Merchant**

Bank

**mode**

Chooses payment mode

4.4.

**Enter card**

Payment mode option

Amount payable

,test+\_id,

ct-id

Choo ses tests

bankid,

name

OTP

bankid

, name

payment\_details

card\_no,expiry, cvv, amount

4.5.

**Enter**

details and make payment

card\_no, expiry\_dat e,cvv

USER

userid,acc

\_id,test\_id

,ct\_id

**OTP**

Confirms payment

users

ct\_cost

Fig. 7.6id,ct\_

customized \_test

* + - 1. CUSTOMIZED MODULE TEST(LEVEL 2 DFD )

userid,test\_id

**SYSTEM ADMIN**

Start button of test

5.1

**Start chosen test**

test\_id,dur

test

Chooses test and

|  |  |  |
| --- | --- | --- |
|  |  |  |
| questio | ns |

userid

Test\_id,date

min

system\_ad

**5.3.**

**Generate IQScore and provide suggestions**

test\_id,dur

ct\_id,cus\_no\_ ans

customized\_

Date and time of test

test

test

\_id, ct\_ id

questi ons for each test

presses start btn

5.2.

**Give test**

Ques for test

correct\_ ch

users

Links of educational and training sites with Suggestions

userid,test\_id,ct\_id, marks,score

**USER**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | score\_car | d |

Fig. 7.7.

feedback

feedback

5.4.

**feedback**

Optons/ answers

answe

rs

user choice

* 1. **FLOW CHART**
     1. **Module 1: user\_login:** This module is activated after user\_registration and the user is provided the login button. If the user presses the login button the user is presented with the login module. The user enters the user\_email and user\_password. The system\_admin database stores an userid generated from user\_email and password. The entered credentials are checked with stored ones. If the match occurs, a 2nd step of a button verification is done on user\_phn. On successful completion of the processes, the user is verified as authentic and allowed access.

Start

user\_email,

user\_password

system\_

admin

userid, user\_email user\_password matching

System\_login

No

Is userid==userid(stored)&&

user\_email==user\_email(s)& &user\_password==stored?

Send 2nd step verification button to email

Yes

Yes

* + 1. **Module 2: general\_test :** This module is available to all users who have registered and made a successful login. After login, users are given ususal instructions and information about the application and its working procedure. On this info page two buttons are provided for

24

* + - 1. **user\_profile\_page**
      2. **general\_test**

Making a profile on the site is optional. However, users with profiles are kept updated with new updations and available advantages of the tests as well as the organizations that might recruit or admit students and trainees on the basis of these tests.

The general tests are devised to test any users decision making, comprehending, calculating,cognitive and language skills. All users are given an IQ score based on their performance. Theses scores are based on IQ testing techniques.

2nd part Solve series

Give answers

1st part Match pattern

Start general\_test, start\_timer

start

Enteruser\_email,

user\_password, user\_phn

No

Do you want

to skip ?

Give

answers

Do you want

to skip ?

Yes

No

Play game

Do you want

to skip ?

Yes

No

No

Give

answer

Do you want to

submit ?

Yes

No

Yes

Fig 7.9.

Is time up ?

stop

Yes

Play game

Answer general MCQ

* + 1. **Module 3: payment\_portal :** The payment portal is to be accessed by the users who wish to test themselves for those modes that require specific interest. This mode may also be accessed by organizations to test their employees for specific skills before recruitment. Each mode has its own cost , the user may enquire and access this mode if desired.

start

Customised

Enquiry about customized test fee

\_test

Amout to be paid for each customized test

Yes

Payment process

No

Do you want to proceed ?

Confirmation of payment with OTP

Enter merchant bank and payment mode

Enter card\_no,expir y,cvv,amount

No

Is OTP valid ?

Enter OTP

Yes

stop

F

* + 1. **Module 4 : customized\_test :** This test module may be accessed by interested individuals who want to be updated on their inherent and acquired skills for the provided fields, considered to be important in obtaining services as marked necessary by organizations and institutions:

 Candidates/Aspirants, opting for this would be tested on

* Teaching Skills
* Financial Skills
* Managerial Skills
* Business Skills
* Social Skills

 Candidates who opt for the tests are guided by AI in answering the questions and their doubts are marked during tests. The System generates a score for such test along with suggestions and links to training and learning sites for users to help them improve those specific skills they are aspiring for.

Start chosen test with AI support

Start customized test

Customised

test

Press

highlighted button of

start

No

Do you want

to proceed ?

Yes

No

Give answers

Do you want to

submit test ?

Yes

Fig 7.11.

stop

Score,marks and suggestions

with educational and training sites

Score card generation

1. **SYSTEM DESIGN**: The design phase focuses on the detailed implementation of the system recommended in the feasibility study. Emphasis is on translating performance specifications into design specification. The design phase is a transition from a user- oriented document (system proposal) to a document oriented to the programmers or data base personnel.
   1. **CLASS DIAGRAM**: It is used as a mapping to design systems in Object Oriented languages. It is a static representation of each class, interface, association and constraint involved in designing the system.

1

* 1. **USE CASE DIAGRAM :** Shows interaction and relation with the system of

different use cases.

System register



System Login

user

System admin

General test

payment

Customized test

Score Card and suggestions

IQ Score

feedback

test

Fig 8.2

* 1. STATE TRANSITION DIAGRAM



System login

**General test**

Do : login

**Do: Give Test**

**Generate IQscore**

**Customised Test**

**Generate IQscore and suggestions**

**Choose**

Payment

Give test

Fig 8.3

* 1. **SEQUENCE DIAGRAM :** These diagrams design, document and validate the the architecture, interface and the logic of the system by describing the sequence of actions to be performed to complete a system or task. They provide a dynamic view of the system with time.

System

users

system login()

authenticate user()

correct option and

test mode()

gives general test()

gives

customized test()

generates IQ score()

TEST

Fig 8.4

* 1. DATA DICTIONARY : (FOR DATABASE : iqtest)

A data dictionary is an ordered list of items which helps in designing software. This is a major component in developing a structured model analysis of the system. A data dictionary in software analysis holds records of objects in the database. It shows data ownership and relationship with other data. It helps in finding data from a description.A data dictionary is a centralized repository of metadata. Metadata is data about data. Some features of a data dictionary are:

* The names of fields contained in all of organisation’s databases.
* The table’s each field contains.
* The databases each field exists in.
* The data types of all field’s in the organisation’s databases.
* The size of all field’s in the organisation’s databases.
* An explaination of what each field means.
* The source of the data for each field.
* The relationship between field’s in the organisation’s databases.
* Default values that exists in all of the organisation’s databases.
* Who has access to each field.

A data dictionary may be used to validate the operator as a user and control attributes such as ownerships and provide cardinality relationships.

1. system\_admin

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Data type** | **Field length** | **Constraints** | **Description** | **Reference** |
| admin\_id | varchar2 | 30 | primary key | sets an identity for admin | none,unique |
| admin name | varchar2 | 50 | not null | sets admin name in database->by admin | none,unique |
| Userid | number | 20 | foreign key | userid generated after registrartion with email, password and email verification of user->by admin | users table |
| instituteid | number | 20 | foreign key | instituteid generated after registrartion with email, password and email  verification of user->by admin | institutes table |
| acc\_id | number | 20 | foreign key | identify payment details of each user making payment, ->by admin | payment\_details table |
| iqexamcode | number | 20 | foreign key | identifies each general test set->by admin | general\_test table |
| ctestcode | number | 20 | foreign key | identifies each customized test set ->by admin | customized\_test table |

1. users

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **data type** | **field length** | **Constraints** | **Description** | **Reference** |
| Userid | number | 20 | primary key | identify each user of system by admin | Unique |
| user\_fname | varchar2 | 50 | not null | first name entered by user during registration | Unique |
| user\_lname | varchar2 | 50 |  | last name entered by user | Unique |
| user\_email | varchar2 | 50 | not null | email entered during registration by user | Unique |
| user\_password | varchar2 | 20 | not null | password entered during registration by user | Unique |
| user\_address | varchar2 | 100 | not null | address entered by user during registration | Unique |
| user\_phn | number | 20 | not null | phone no. entered by user during registration | Unique |
| user\_set\_verification | varchar | 10 |  | consent provided by user for 2 step verification, done to  check email | Unique |
| user\_passcode | number | 10 |  | code sent through mail api | Unique |
| rem\_me | varchar | 10 |  | option selected by user to auto set the fields | unique |
| user\_feedback | varchar2 | 100 |  | given by user to share opinion and suggestions | unique |
| acc\_id | number | 20 | foreign key | identify the account details of user in payment portal by  admin | payment details  ,system\_admin tables |

1. Institutes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **data type** | **field length** | **Constraints** | **Description** | **reference** |
| Instituteid | number | 20 | primary key | identify each user of system by admin | Unique |
| institute\_name | varchar2 | 50 | not null | first name entered by user during registration | Unique |

32

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| institute\_email | varchar2 | 50 |  | last name entered by user | Unique |
| institute\_password | varchar2 | 20 | not null | email entered during registration by user | system\_admin |
| institute\_phone | varchar2 | 20 | not null | password entered during registration by user | system\_admin |
| institute\_address | varchar2 | 100 | not null | address entered by user during registration | Unique |
| institute\_userid | number | 20 | not null | phone no. entered by user during  registration | system\_admin |
| institute\_passcode | number | 10 |  | code sent through mail api | system\_admin |
| rem\_me | varchar | 10 |  | option selected by user to auto set the fields | unique |
| institute\_feedback | varchar2 | 100 |  | given by user to share opinion and suggestions | unique |
| acc\_id | number | 20 | foreign key | identify the account details of user in payment portal by  admin | payment details  ,system\_admin tables |
| Iqexamcode | number | 20 | foreign key | identify general test taken by user, by admin | general-test table |
| Ctestcode | number | 20 | foreign key | identify customized test taken by user, by admin | customized test table |
| gc\_code | number | 20 | foreign key | grade card generated for user/user\_institute | grade\_card table |

1. **general\_test**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Field name** | **Data type** | **Field length** | **Constraint** | **Description** | **Reference** |
| Iqexamcode | number | 20 | primary key | identify each general test ->by admin | Unique |
| gt\_name | varchar2 | 50 | not null | name of general test -  >by admin | Unique |
| gt\_marks\_ per\_ques | number | 10 |  | marks allotted for each question answered | Unique |

33

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  | correctly->by admin |  |
| wrong\_penalty | number | 10 |  | marks to be subtracted for each question answered wrongly->by admin | Unique |