

ICDE-[Skill Stack]

Name: Ajay Kumar Lakshmipura Vijaykumar
Student ID:40168544

Program: MEng Electrical and Computer Engineering

Email: a_laks@encs.concordia.ca

SE Background: Familiar with C, Python and OOPS Concepts

Name: Somesh Vemula
Student ID:40161259

Program: MEng Electrical and Computer Engineering

Email: s_emula@encs.concordia.ca

SE Background: Familiar with C, Python and OOPS Concepts

Name: Goutham Kumar Prabhakaran
Student ID:40160167

Program: MEng Electrical and Computer Engineering

Email: g_prabh@encs.concordia.ca

SE Background: Familiar with C, Python and OOPS Concepts

I. TOOLS DECIDED

Description	Tool
Code Repository	GitHub
IDE	PyCharm
Programming Language	Python
Group Communication Software	Microsoft Teams
Progress Tracking Tool	JIRA
Database	MongoDB
Use case Diagram	Lucidchart
Architecture Diagram	draw.io

Table 1: Tools

II. PROBLEM STATEMENT

ICDE - [Skill Stack]

The main aim of the project is to develop a course recommendation system, making it easy for a user to choose course from most accessed courses for a particular discipline.

III. ARCHITECTURE DIAGRAM

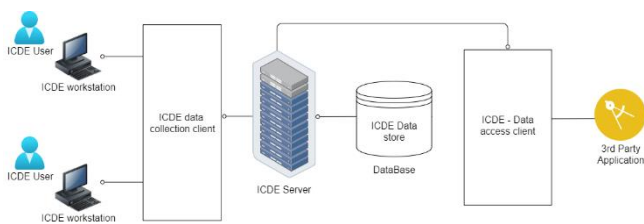


Fig 1. ICDE - [Skill Stack] Architecture

Fig.1 shows the concrete context of how data flows from multiple users to database and then to third party applications using ICDE - [Skill Stack].

IV. KEY FUNCTIONALITIES

- Collection of user data**
Accumulating piles of data provided by the user and storing it.

- Course recommendation based on user's interest**
From the user data, suggesting the courses based upon the particular interest and help user develop skills in the specific discipline.
- Tracking user actions**
To make the user engaged, tracking the user actions and presenting it to the user.
- Updating the user profile and storing in Database**
Storing these user data and preferences in our database handled by NoSQL Database.
- Analyzing the actions**
Analyzing the various activities done by the user and storing it in the database for analyzing later.
- Presenting the analyzed data**
Parsing the analyzed data and delivering it statistically with the help of a 3rd party application.

V. USE CASE DIAGRAM

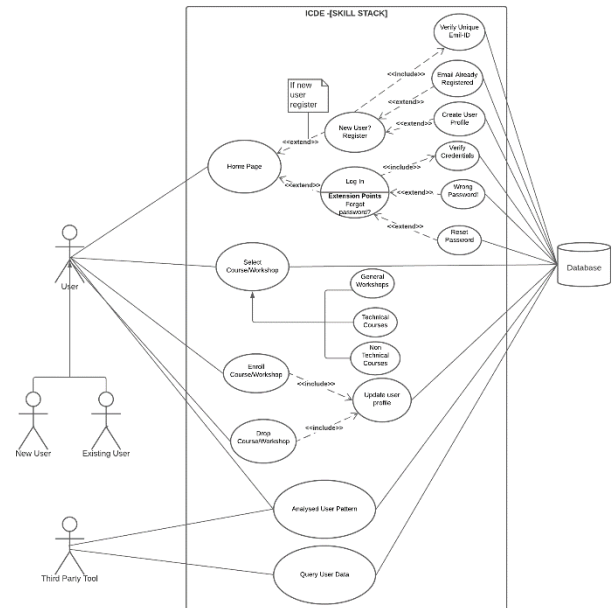


Fig 2. ICDE-Use case Diagram

VI. USER STORIES

Home Page

Use case - Home Page

User Story (US_01) - He/ She is the new user and needs to create an account, the fields that are displayed "Login", "Sign Up" and "Exit". If the user selects "Login", the system navigates to the login page where it asks for the user credentials. Rather if the user selects "Sign Up", the system asks the user for the details of the user for purpose of registration.

Requirement Specification (RS_01) - In home page, ICDE-Skill Stack System shall have "Sign Up", "Sign In" fields. Upon user selection the ICDE-Skill Stack System shall navigate to Sign-up page, Sign-In page of the ICDE-Skill Stack System respectively.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

- SRS_0101** ICDE-Skill Stack System home page shall have "Sign Up", "Sign In" options.
- SRS_0102** Upon selection, ICDE-Skill Stack System shall navigate to Sign-up page, Sign-In page and Exit the application respectively.

Sign Up

Use case - Sign Up

User Story (US_02) - He/ She is the new user and needs to create an account, the "Sign Up" page displays the fields to collect the details of the user. The user provides all the details such as, "First Name, Last Name, E-Mail, Password, Confirm Password, Security Questions, Mobile Number" and once he clicks "Submit", the account is created and the user is landed on the application main page. If the user selects "Back to Homepage", he is navigated to the homepage.

Requirement Specification (RS_02) - In registration page, ICDE-Skill Stack System shall collect the user info which are listed below: First Name, Last Name, User Mail ID, Password, Confirm Password, Mobile Number, Discipline. Also, ICDE-Skill Stack System should verify provided User Mail ID is a unique mail id and is not registered before.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

- SRS_0201** Registration page shall have fields listed below that are to be collect from a new user: First Name, Last Name, User Mail ID, Password, Confirm Password, Mobile Number, Discipline.
After Submission the user is navigated to application main page.
Also, registration page should have "Back to Homepage" option which enables user to return to home page.
- SRS_0202** ICDE-Skill Stack System shall verify for unique mail id upon user input.
- SRS_0203** ICDE-Skill Stack System shall create user profile.
- SRS_0204** ICDE-Skill Stack System shall upload user profile to data base.

Log In

Use case - Log in

User Story (US_03) - He/ She is a returning user who wish to access the courses, the Login page displays the fields to collect the user credentials. The user provides the user credentials such as, "E-Mail, Password" and once he clicks "Login", the user is logged in. If the user selects "Back to Homepage", he is navigated to the homepage.

Requirement Specification (RS_03) - Login page shall have Email and Password fields to fill in by the user. Upon user input ICDE-Skill Stack System verifies the entered credentials and allow user to login or display login error due to wrong password.

Also, Login page should have "Back to Homepage" option which enables user to return to home page.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

- SRS_0301** Login page of ICDE-Skill Stack System, shall have "E-Mail" and "Password" fields to enter by existing user. Here Username should be user mail id.
Also, Login page should have "Back to Homepage" option which enables user to return to home page.
- SRS_0302** ICDE-Skill Stack System, shall verify the entered credentials and allow user to login or display login.

Reset the password

Use case - Reset the password

User Story (US_04) - On account of forgetting the password, there will be a field "Forgot the password?", once selection the user is directed to reset the password where the user will be asked for security questions and upon successful authentication of the questions, the user is allowed to reset the password.

Requirement Specification (RS_04) - ICDE-Skill Stack System shall collect the required fields: username, answers for security questions, upon successful authentication, can reset the password.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

- SRS_0401** ICDE-Skill Stack System shall have forgot password option on login screen.
- SRS_0402** Forgot password page shall have a security check to authenticate the user.
- SRS_0403** Upon successful authentication, ICDE-Skill Stack System shall take new password from user.
- SRS_0404** ICDE-Skill Stack System shall update a user profile with an updated password and store it in Database.

Course/Workshop selection

Use case - Course/Workshop selection

User Story (US_05) - User who wish to select workshop/course, once he lands on the application main page there will be three fields – “General workshops”, “Technical Courses” & “Non-Technical Courses”. If the user selects “General workshops”, he’ll then be the given various options to choose according to his convenience. If the user selects for “Technical”, “Non-Technical”, Courses, the user is given various options under different titles to choose from.

Requirement Specification (RS_05) - Once after successful login, ICDE-Skill Stack System shall have application main page displaying with General Workshop, Technical course and Non-Technical course sections so that user can select a course from the list of courses inside these course sections conveniently.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

SRS_0501 ICDE-Skill Stack System shall have application main page displaying General Workshop, Technical course and Non-Technical course sections.

SRS_0502 ICDE-Skill Stack System Shall allow user to select courses under General Workshop, Technical course and Non-Technical course sections.

Enrollment

Use case - Enrollment.

User Story (US_06) - After the user decides on the course/workshop, he/she will be able to access the course only after enrolling. Thus, there will be a field “Enroll”. If the user selects “Enroll” he/she is enrolled. The course enrolled is updated to user profile.

Requirement Specification (RS_06) - As user selects a course from the list of courses, the application shall have an enroll option for a selected course and then update the enrolled course onto user profile.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

SRS_0601 ICDE-Skill Stack System shall take the response from user to enroll for a particular course.

SRS_0602 ICDE-Skill Stack System shall update the enrolled course onto user profile.

Drop a course/workshop

Use case - Drop a course/workshop

User Story (US_07) - Upon enrollment, the user is also given the option of dropping the course at any time. So, if he/she decides to drop the course, there will be a field in every course, “Drop the course”. On selecting it, the user is asked for the reason for dropping it, after reviewing the user is successfully dropped from the particular course.

Requirement Specification (RS_07) - For every course/workshop enrolled by the user, application shall have a drop the course option.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

SRS_0701 ICDE-Skill Stack System shall take the response from user to drop a particular course.

SRS_0702 ICDE-Skill Stack System shall update the user profile upon dropping a course.

Query User Data

Use case - Query user data

User Story (US_08) - In order to present the statistical report on user actions, the ICDE system queries the data of various users registered in the same discipline and sends it to the 3rd party application.

Requirement Specification (RS_08) - As per user's selection, application shall query the enrolled workshops and courses list of users of same discipline from the database and passing it to the 3rd party application.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

SRS_0801 ICDE-Skill Stack System shall query the list of enrolled courses from database sorting user with same discipline.

SRS_0802 ICDE-Skill Stack System shall pass the queried data to the 3rd party application

Analyze user pattern

Use case - Analyze user pattern

User Story (US_09) - He/she is in search of a trending course in his/her discipline. In view of achieving it, the administrator who queries the data, analyzes it and presents the data according to certain categories making it easy for the user to select. Those fields include, “Most accessed courses/workshops”.

Requirement Specification (RS_09) - Third party Application shall collect the queried data and analyze it to draw a pattern and return the results.

Sub-Requirements - (SRS-Sub-Requirement Specifications)

SRS_0901 ICDE-Skill Stack System need to recommend the user for the course.

SRS_0902 ICDE-Skill Stack System shall receive analyzed data from third party Application.

SRS_0903 ICDE-Skill Stack System shall present the analyzed data to the user.