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A Web Portal Architectural Design and Implementation for Skill Development and Entrepreneurship

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Abstract: A web portal architecture for implementation in Skill Councils in India was proposed and described in this paper. The Agile model was implemented as the methodology of choice where it proposes a systematic method to software development which helps to clearly outline both the user and system requirements. The portal proposed was developed using several development tools such as Java for backend where the Windows platform is the operating system on which the portal runs, while MySQL was used for the database and AngularJS as the front-end web application framework. A prototype of the portal was designed using modeling tools such as Data Flow Diagram (which included Training Partner and Assessment Body data flow diagram, Manage Registration data flow diagram, and administrator level data flow diagram).

Index Terms: Skill Council, Agile, Portal, Prototype.

I. INTRODUCTION

A web portal is a specially designed website that often serves as the single point of access for information. A web portal, also known as a links page, presents information from diverse sources in a unified way. They go beyond static web pages and require a sign on which links to some knowledge the organization has collected about the visitor. That knowledge allows portals to be tailored to meet individuals need. The business dictionary enumerated that portals go beyond the delivery of static information and often provide access to services offered by the organization. A portal makes network resources (application, databases, etc.) available to end users. The user can access the portal using a web browser, mobile phones, tablets and other devices. A personalization will make the portal more appealing to the user, by this a portal allows the user to enter their personal information, this space can be defined as a place where a user can view and do what he/she wants to Do and not what someone else thinks should be done. Some Examples of web portals are Facebook, Google, Outlook, Netflix, and Yahoo.

II. METHODS

A. Analysis of Existing System

In the present scenario, Skill Council is maintaining all information (records) who have undergone some training in their respective institute which is called Training Partner and the information related to the Assessment Body.

The process of storing and maintaining Information of Batches, Candidates, Training Partner and Assessment Body etc. by different Skill Councils, which is done manually on papers, and also certificates were issued by Skill Councils to the batch of candidates after assessment process leads to the following problems -:

- 1) The tedious process of storing and maintaining Information.
- 2) The cumbersome manual process of obtaining accurate data and statistics.
- 3) Difficult to perform any action on the information stored manually.
- 4) It took more time in the certification process as they were supplied through post by Skill Council to the corresponding Training Partners.
- 5) Difficulty in maintaining the Audit history i.e., history of sheets maintained manually.

B. The Proposed System Analysis

The system has been divided into modules where each module is described below.

- 1) Login Module: The idea behind this module is to provide entry to the system or website. Based on the type of login, the user is provided with various facilities and functionalities. The main function of this module is to allow the user to use the portal. This module provides two types of login —Admin login (Skill Council) and Training Partner/Assessment Body login.
- 2) Online Registration Module: In this module, the Training Partner/Assessment Body fill-up a form to get themselves registers with the Skill Council.
- 3) Dashboard Module: This module provides the ability to Skill Council (Admin) visualize the Key Performance Indicators and other strategic data for Skill Council at a glance.
- 4) Manage Registration Module: This module provides the ability to assign a particular batch to a Training Partner.
- 5) Data Import-Module: The purpose of this module is to feed existing data of Skill Council which is on paper into the new system.
- 6) FAQ's Module: This module provides the ability to offer an FAQ list. FAQ refer to listed questions and answers, all supposed to be frequently asked in some context and pertaining to a particular issue.
- 7) Batch Assignment Module: This module provides the ability to assign a batch to a Training Partner using an algorithm, if the Training partner rejects a batch then that batch is an assignment to some other Training Partner with the help of that algorithm.

The expected functionalities of the 'to be system' is indicated below:

- a) Decreased time of the registration process.
- b) To bring transparency in the system.
- c) To carry the applications easily.
- d) To eradicate the chaos and confusion in the registration process.
- e) To maintain the records properly.
- f) To automate the tedious process of fill up all the fields in the paper.
- g) The data carried manually is not always easy
- h) To increase the transparency of the system with the all documents attached
- i) To make a collection of all the affiliation documents at a single place to increase the availability of the information.

C. System Design

The system is a web-based system that allows multiple access concurrently.

System design is divided into stages:

- 1) Logical design: This is concerned with object-oriented modeling of the system analysis.
- 2) Physical design: This is concerned with the construction of the real system. In the object-oriented analysis and design, Unified Modeling Language will be used to model the system where a model is an act of drawing one or more graphical representations of a system with modeling being the process of abstracting and organizing significant features of part of the real world.

D. Design Models

Different models were constructed with unified modeling language using CASE (Computer Aided Software Engineering) tools for the proper understanding of the system and also to provide a coherent strategy of the way forward. Such models include Data Flow Diagram.

- a. Data Flow Diagram: This is a process model used to depict the flow of data through a system and the work or processing performed by the system. In this model, there are four symbols, the rounded rectangle represents processes or work to be done, the square represents external agents, which are the boundary of the system, the open-ended box represents data stores, which are sometimes called files or databases, the arrows represent data flows, or inputs and outputs, to and from the processes.

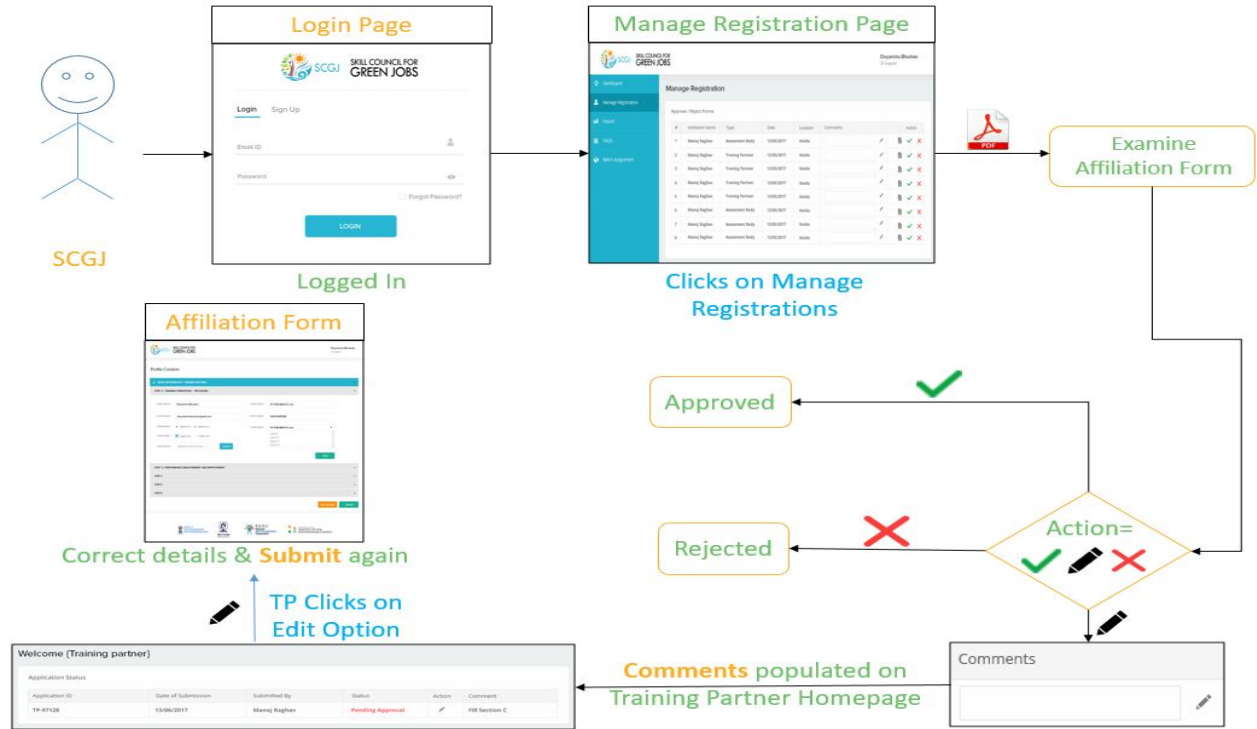


Fig 1: Data Flow Diagram for Manage Registration

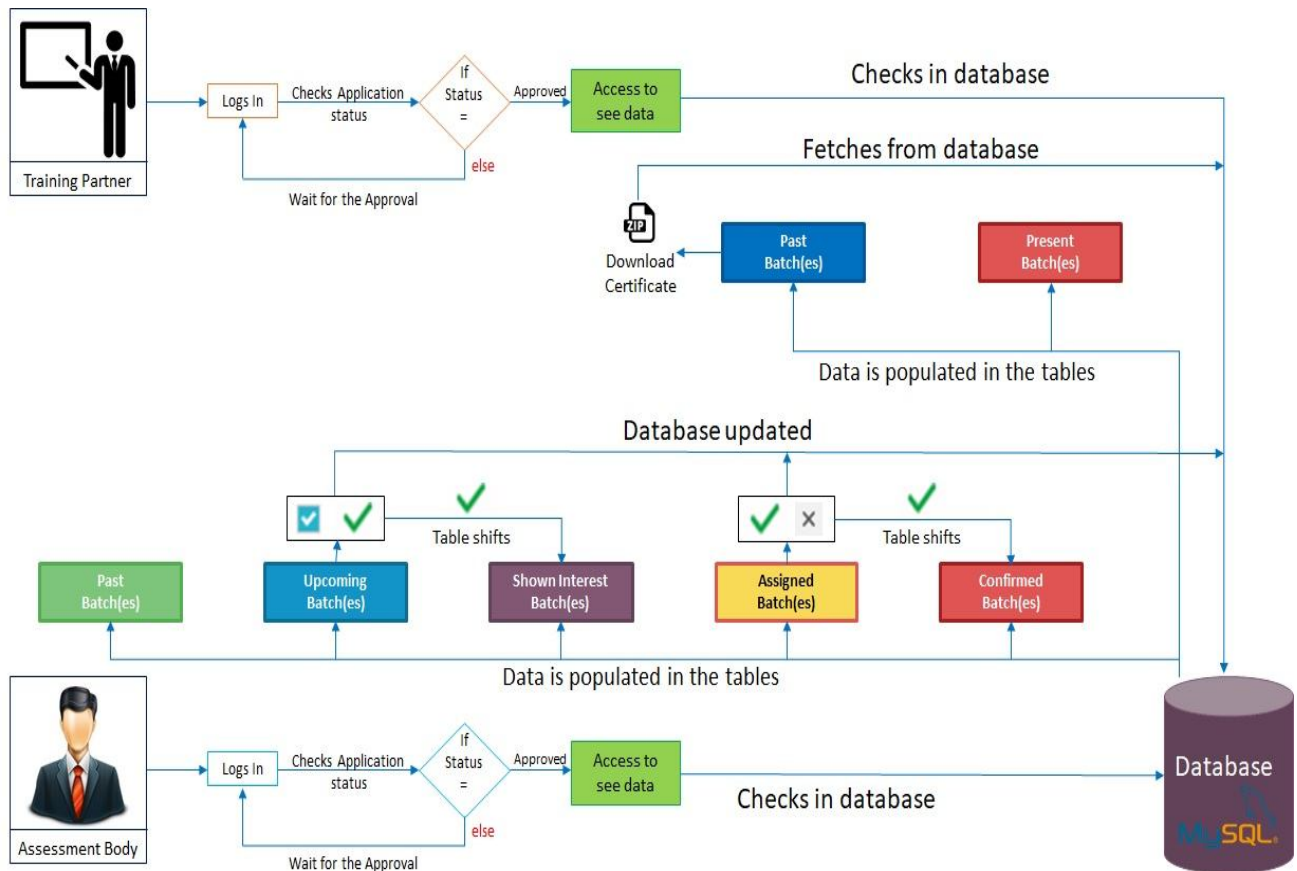


Fig 2: Data Flow Diagram for Training Partner and Assessment Body

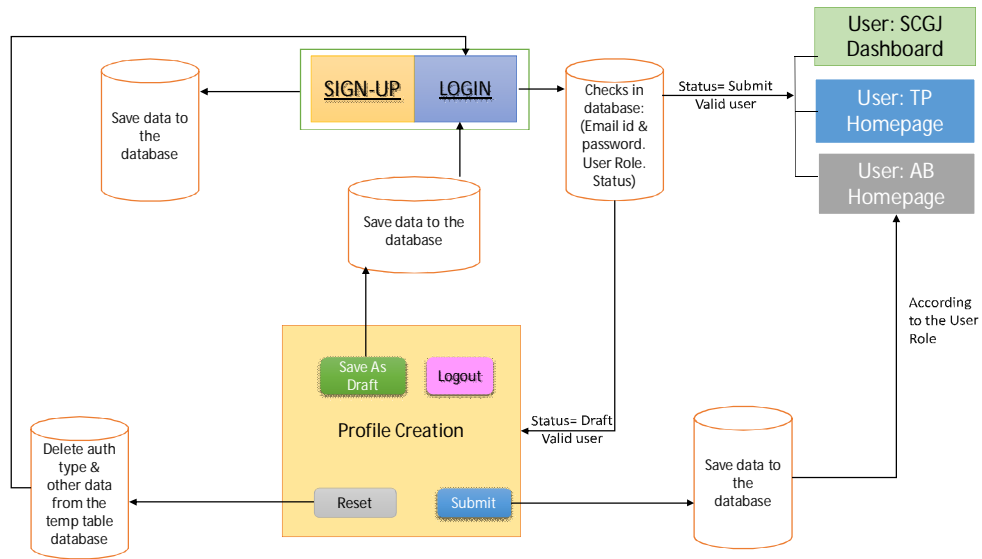


Fig 3: Data Flow Diagram for Login and Sign-Up

III. RESULTS AND DISCUSSIONS

A. Admin Login/Training Partner and Assessment Body Login

- 1) Step 1: After launching the system, the student login module is located on the right side of the content.

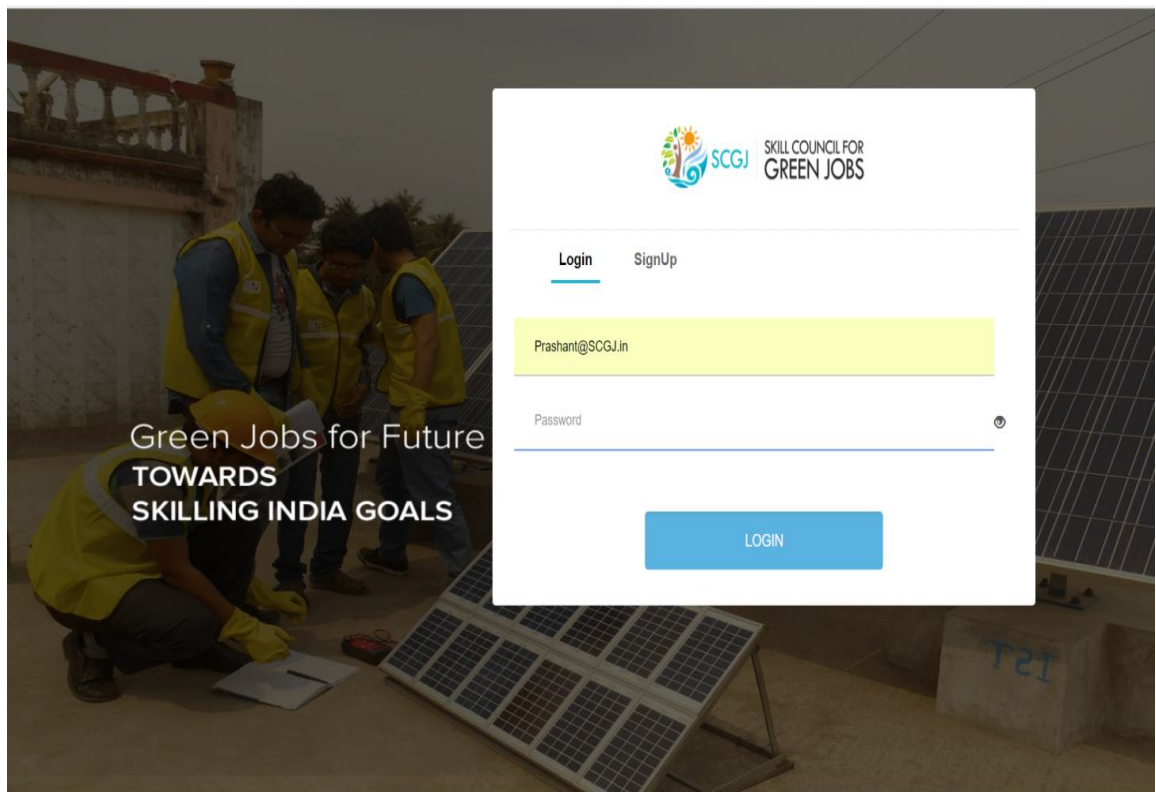


Fig -4: Login Page

2) Step 2: The Dashboard page will be the home page for the Admin after logging in.

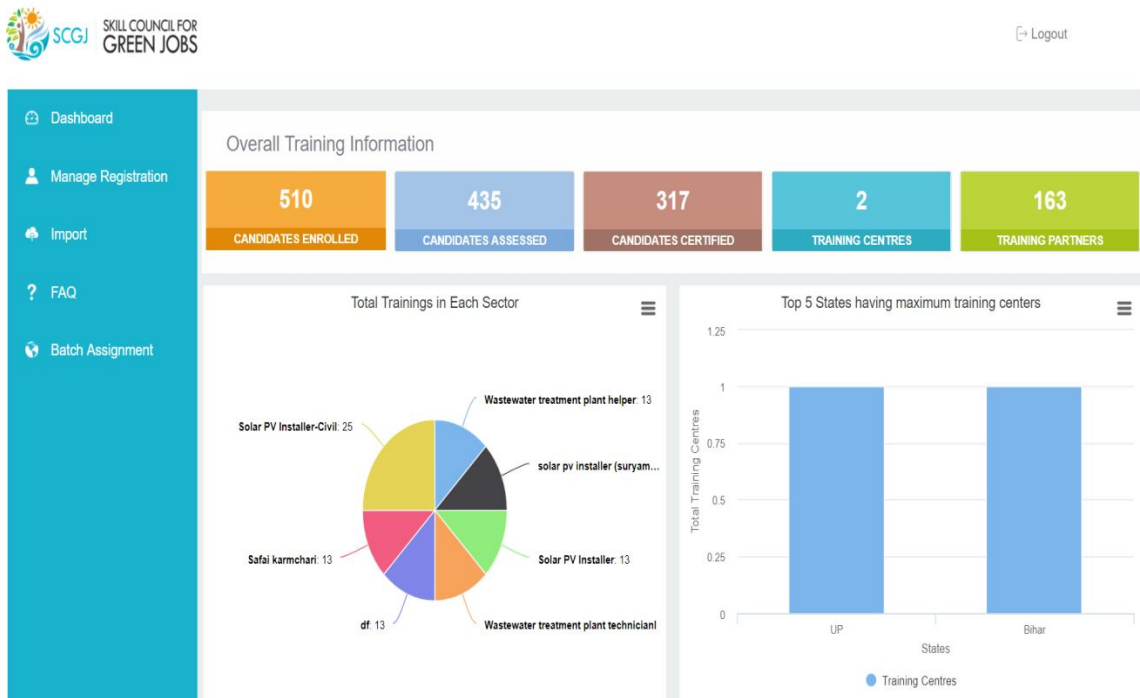


Fig -5: Dashboard (Homepage)

3) Step 3: The Data Import page provides the functionality to feed the existing data into the system and to upload the certificate of the students, these certificates can be downloaded by the Training Partners.

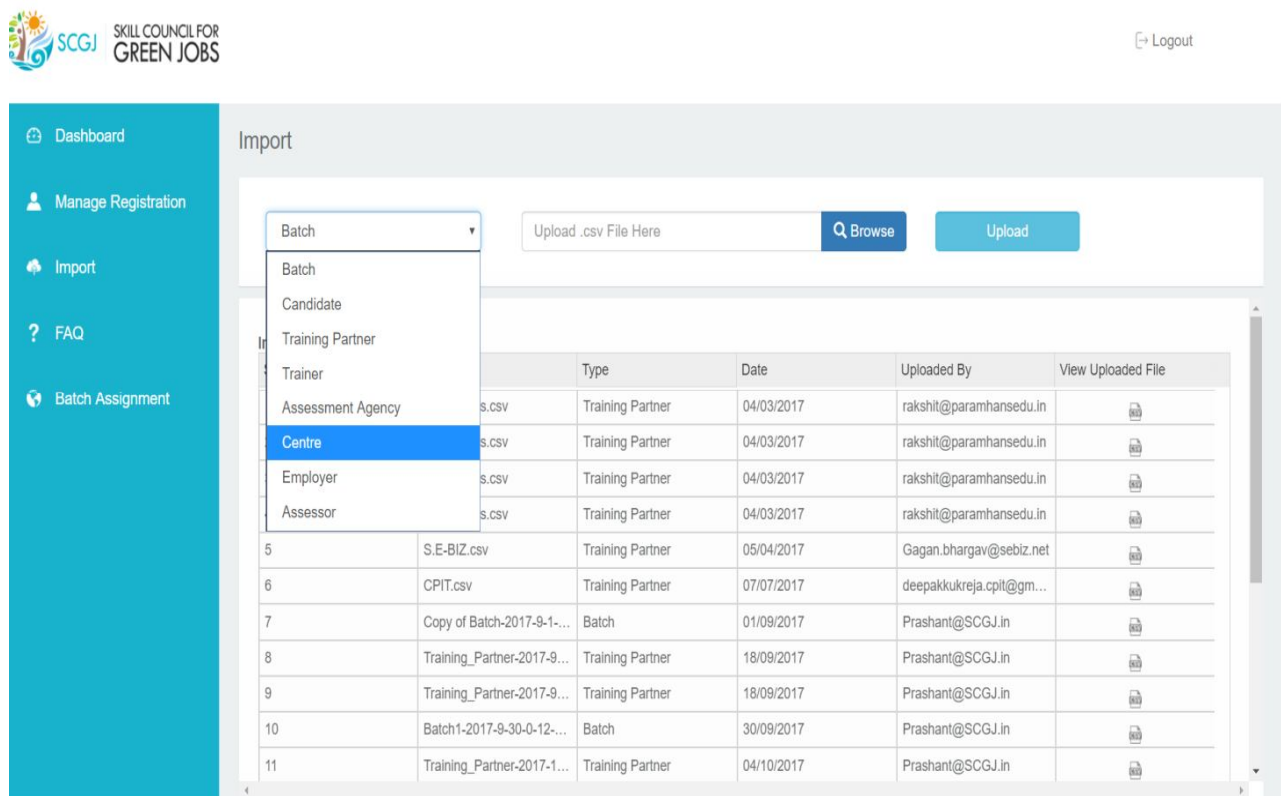


Fig -6: Data Import

4) Step 4: The FAQ page provides the user information regarding how to use a functionality if he/she is new to the system.

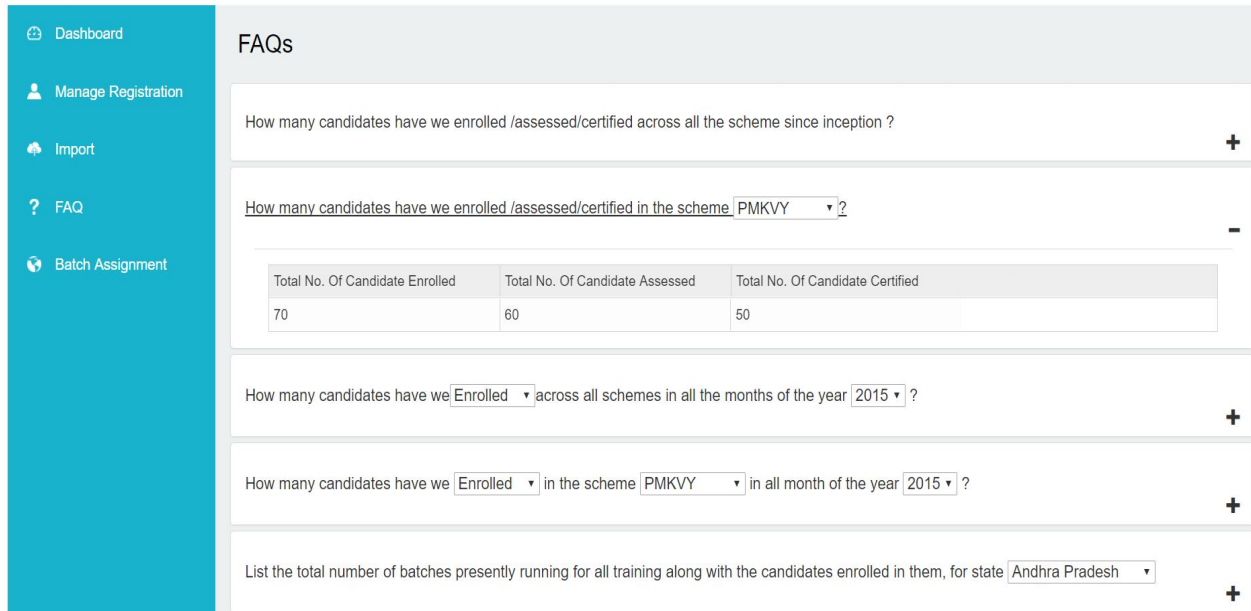


Fig -7: FAQ

5) Step 5: This page provides the information about the action taken by the Training Partner related to new batch whether they accept it or rejected it,

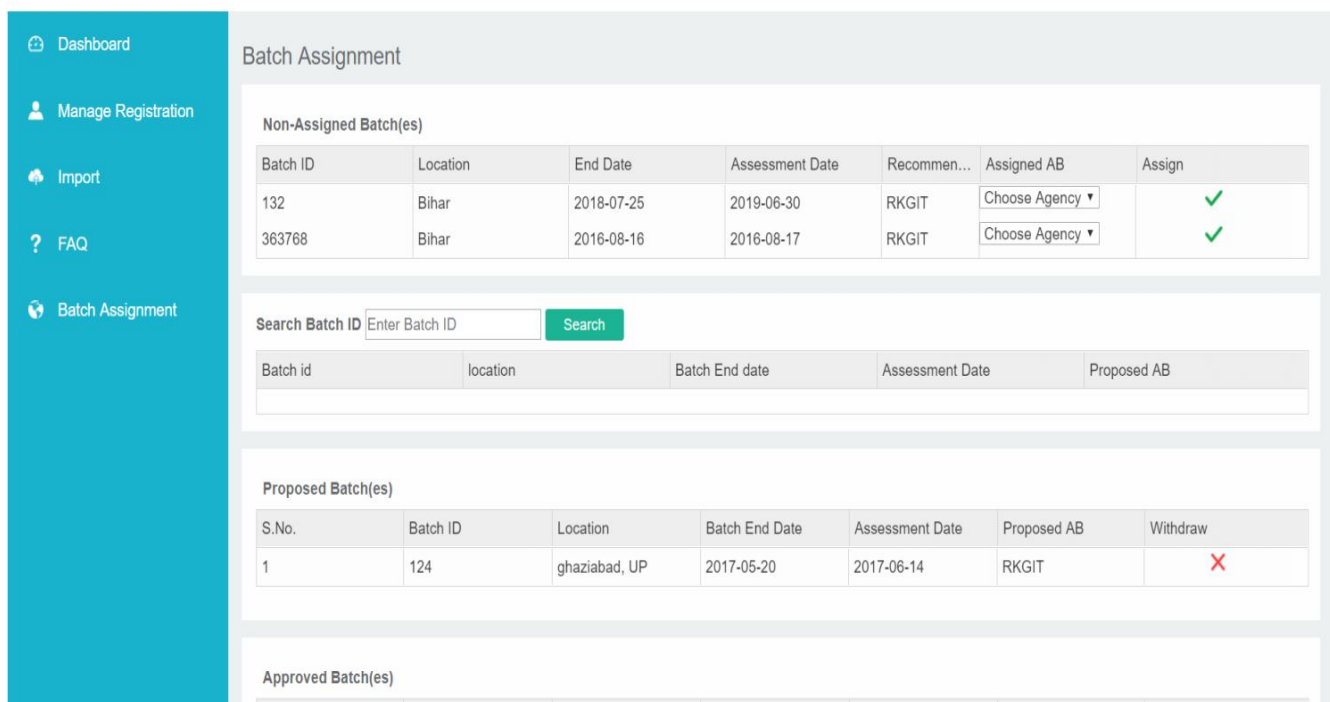


Fig -8: Batch Assignment



IV. CONCLUSIONS

We propose Digitization and automation of Skill development ecosystem for different Skill Councils, where a common platform for the private firms and different Skill Council will be provided which will not only make the whole process of working of different Skill Council more user-friendly but will also provide transparency, accuracy and will be time-saving.

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