

# **KL ONBOARDING : PROJECT MANAGEMENT SYSTEM**

**A PROJECT REPORT**

*Submitted by*

**GANGA J (TKM19MCA010)**

**to**

**The APJ Abdul Kalam Technological University**

*In partial fulfillment of the requirements for the award of the degree of*

**MASTER OF COMPUTER APPLICATIONS**



**Thangal Kunju Musaliar College of Engineering  
Kerala**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**MAY 2022**

## DECLARATION

I undersigned hereby declare that the project report on “KL ONBOARDING : PROJECT MANAGEMENT SYSTEM” , submitted for partial fulfillment of the requirements for the award of degree of Master of Computer Applications of the APJ Abdul Kalam Technological University, Kerala is a bonafide work done by me under supervision of Prof. Vaheetha salam. This submission represents my ideas in my own words and where ideas or words of others have been included, I have adequately and accurately cited and referenced the original sources. I also declare that we have adhered to ethics of academic honesty and integrity and have not misrepresented or fabricated any data or idea or fact or source in our submission. I understand that any violation of the above will be a cause for disciplinary action by the institute and/or the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been obtained. This report has not been previously formed the basis for the award of any degree, diploma or similar title of any other University..

Kollam

20/05/2022



Ganga J

**DEPARTMENT OF COMPUTER APPLICATIONS**  
**TKM COLLEGE OF ENGINEERING**



**C E R T I F I C A T E**

This is to certify that, the project report entitled “**KL ONBOARDING : PROJECT MANAGEMENT SYSTEM**” is submitted by **GANGA J (TKM19MCA010)** to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the degree of Master of Computer Applications, is a bonafide record of the project work carried out by her under our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

Internal Supervisor

Head of the Department

External Examiner

## ACKNOWLEDGEMENT

First and foremost I thank GOD almighty and my parents for the success of this project. I owe sincere gratitude and heart full thanks to everyone who shared their precious time and knowledge for the successful completion of my project.

I am extremely grateful to **Prof. Dr. Fousia Meerasahib Shamsudeen**, Head of the Department, for providing me with best facilities.

I would like to thank my project guide **Prof. Vaheetha Salam** Department of Computer Applications, who motivated me throughout the work of my project.

I would like to thank my external coordinator **Mr.Amal G Jose**, Knowledge Lens, who guided me throughout my work.

I profusely thank all other faculty members in the department and all other members of TKM College of Engineering, for their guidance and inspirations throughout my course of study.

I owe my thanks to my friends and all others who have directly or indirectly helped me in the successful completion of this project.

**Ganga J**

## **ABSTRACT**

KL ONBOARDING is an app built to help internal stakeholders with the onboarding process of employees to the various projects and keep a track of it. Onboarding flows help streamline the onboarding experience for new employees, stakeholders and HR alike, helping HR to provide a positive onboarding experience for new employees. Using onboarding checklists, we can ensure that every task and touchpoint is covered at exactly the right time, and that no detail is overlooked.

Can set up onboarding flows and tailor them to meet global workforce needs. Create tasks for managers, IT, and peers to ensure that your new hire has everything they need from day one and throughout the onboarding period. Currently the entire onboarding process is done manually using the excel sheets which is a time consuming process. As the company grows it would become difficult to manage the entire process manually using excel sheets and so the main purpose of this application is to make this process much easier for the stakeholders.

Every project or event involves series of tasks, activities, people, budget and deadlines. No matter how big or small the project is, the success or failure of the project depends on the execution plan and the order in which the tasks are fulfilled. It takes a great deal of skill to do this well, the time invested in building good project management techniques can pay off enormously and helps to achieve projects on time within the resource constraints. When one knows how to organize, schedule and delegate tasks it is an easy step for them to obtain the success of the project. This is where KL ONBOARDING project management system comes in to the picture. Currently, there is no system or tool to organize the project related tasks and segregate it on priority. It helps team to design the tasks and share it across easily. This proposed solution helps project management team and fellow teammembers to organize task effectively.

# Contents

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>INTRODUCTION</b>                               | <b>1</b>  |
| 1.1      | Objective . . . . .                               | 2         |
| 1.2      | Company Profile . . . . .                         | 3         |
| 1.2.1    | Products . . . . .                                | 3         |
| 1.2.2    | Services . . . . .                                | 5         |
| <b>2</b> | <b>Literature Survey</b>                          | <b>7</b>  |
| 2.1      | Purpose of the Literature Review . . . . .        | 7         |
| 2.2      | Related works . . . . .                           | 8         |
| <b>3</b> | <b>Methodology</b>                                | <b>13</b> |
| 3.1      | System Architecture . . . . .                     | 14        |
| 3.2      | Software requirements and specification . . . . . | 17        |
| 3.2.1    | System Design . . . . .                           | 20        |
| <b>4</b> | <b>Result And Discussion</b>                      | <b>23</b> |
| 4.1      | Types Of testing used in KL ONBOARDING . . . . .  | 24        |
| 4.2      | Functionality Testing . . . . .                   | 24        |
| 4.2.1    | Test Links . . . . .                              | 25        |
| 4.2.2    | Test Forms . . . . .                              | 25        |
| 4.2.3    | Test Cookies . . . . .                            | 25        |
| 4.2.4    | Test HTML and CSS . . . . .                       | 25        |
| 4.2.5    | Test business workflow . . . . .                  | 26        |

|          |                                      |           |
|----------|--------------------------------------|-----------|
| 4.3      | Usability Testing . . . . .          | 26        |
| 4.3.1    | Test the site Navigation . . . . .   | 26        |
| 4.3.2    | Test the Content . . . . .           | 26        |
| 4.4      | Interface Testing . . . . .          | 26        |
| 4.5      | Database Testing . . . . .           | 27        |
| 4.6      | Compatibility testing . . . . .      | 27        |
| 4.7      | Performance Testing . . . . .        | 27        |
| 4.8      | Security testing . . . . .           | 28        |
| 4.9      | Crowd Testing . . . . .              | 28        |
| 4.10     | Implementation . . . . .             | 28        |
| 4.11     | Implementation Phase . . . . .       | 29        |
| 4.12     | Validation . . . . .                 | 30        |
| 4.13     | Output Screens and Results . . . . . | 30        |
| <b>5</b> | <b>Conclusion</b>                    | <b>34</b> |
| 5.1      | Advantages . . . . .                 | 35        |
| 5.2      | Future Enhancement . . . . .         | 35        |
|          | <b>References</b>                    | <b>36</b> |
|          | <b>APPENDICES</b>                    | <b>38</b> |

# List of Figures

|     |                               |    |
|-----|-------------------------------|----|
| 3.1 | System Architecture . . . . . | 15 |
| 4.1 | Dashboard . . . . .           | 31 |
| 4.2 | Onboard . . . . .             | 31 |
| 4.3 | Add New Project . . . . .     | 32 |
| 4.4 | SOW . . . . .                 | 32 |
| 4.5 | SOW Active . . . . .          | 33 |
| 5.1 | login page . . . . .          | 38 |
| 5.2 | Dashboard . . . . .           | 39 |
| 5.3 | projects list . . . . .       | 39 |
| 5.4 | Requested . . . . .           | 40 |
| 5.5 | Archived . . . . .            | 40 |
| 5.6 | Candidate review . . . . .    | 41 |

# Chapter 1

## INTRODUCTION

The way teams work in the workplace is changing rapidly. What was once restricted to the use of notebooks, notepads and reminders is now a tedious process of finding and using the right kind of cloud-based task management app. And it's not just task management, anyone who has ever been a part of a project would vouch for the fact that everything we know about managing a project or business is changing with the increasing technological trends and automation.

So far, the changes have worked in the favor of business world. The reason is that every business, large or small, juggle a number of projects, plans, tasks, and people at the same time. And it turns out that it's getting more and more difficult for project managers as well as teams to keep an eye on what they're doing and what needs to be done next. Now, having a dedicated app or software solution that helps them plan better and stay organized throughout the day sure sounds promising.

KL ONBOARDING is an app built to help internal stakeholders with the onboarding process of employees to the various projects and keep a track of it. To begin with, like most employees, have at least 20 different tasks and activities in to-do list for the day. Now, not every task in list holds the same significance as the other. This is where practices like task management and time management prove most useful. Onboarding management is deemed extremely important for every project manager and team because it allows them to keep a close eye on their priorities and become more productive each day. With the right task management app, it's easier to set priorities, explore the art of delegation, communicate directly on tasks, track task progress in real-time, and stay on top of your routine work.

## **1.1 Objective**

Currently the entire onboarding process is done manually using the excel sheets which is a time consuming process. As the company grows it would become difficult to manage the entire process manually using excel sheets and so the main purpose of this application is to make this process much easier for the stakeholders. The primary objectives of a onboarding project management system are the objectives of business management. An effective onboarding project management system will help improve productivity, organize project and non-project tasks, and automate repetitive processes. These are sub-systems within the overall work management system implemented in a business to ensure all functions are running smoothly. The project aims to achieve the following:

- Effective task management
- Flexibility and scalability
- Improved communication and accessibility
- High-level project planning
- Detailed project estimates and task schedules
- Effective resource allocation
- Centralized documentation and file management
- Accurate tracking
- Replace manual onboarding process
- Minimize the usage of excel sheets
- Make the onboarding process much easier for the stakeholders.

Project management is the application of skills, knowledge, tools, and techniques to plan and implement projects. The work management system should help project managers initiate project plans, allocate resources, track budgets, conduct project audits, share project updates with management, manage multiple portfolios and retrieve customized reports. With the sudden surge in remote working experienced in 2022, smooth management of projects and accompanying teams has become more crucial than ever to meet project timelines. The key Features are:

- ensure effective task management
- There is a separate login credentials for admin and project managers to logging into the application.
- keep work organized
- make review and approval process faster and more collaborative
- get clear insights with dynamic reports
- providing Gantt charts to provide a visual timeline for tasks

## **1.2 Company Profile**

Knowledge Lens is a US and India based product and services technology company that builds innovative solutions on niche technology areas such as Big Data Analytics, Data Science, Artificial Intelligence, IoT, Blockchain, AR/VR and Cloud. What truly sets Knowledge Lens apart is the use of a microservice-based architecture, to expand solution capabilities without disrupting critical business activities. This enables to provide user-focused, domain-specific software applications built on cutting edge, adaptive technologies.

### **1.2.1 Products**

- iLens(Intelligent Lens)

iLens provides a single platform for smart integration with various devices or sensors in large enterprises, manufacturing industry, home, commercial properties etc. iLens provides an MQTT

interface for seamless integration of various sensor devices in the field to capture time series data in real time. Based on pre-configured rules, iLens is able to generate alerts, alarms based on the rules.

- MLens

MLens is a one-step solution which enables you to manage disaster recovery for your big data and platforms. Features of MLens :

- Big Data Backup Migration
- Automated Disaster Recovery
- Data Encryption, compression Archival
- High Speed Batch Data Ingestion
- Monitoring Scheduling
- Secured Access controls
- AiLens

Next Generation Ai platform that offers a collaborative workspace with experiment designer, modelling feature engineering work bench, AI/ML assets repository integrations for enterprise security and DevOps. AiLens is an intelligent assistant for Artificial Intelligence crafted with a unified graphical interface for building Data Engineering and AI/ML pipelines. AiLens includes a unified AI Orchestrator which triggers model execution runs on any runtimes like Tensorflow, SparkML, H2O, MxNet, Theano, Py Torch, AWS / Azure from a console. AiLens is quite flexible as the user experience will be the same. irrespective of any new technological advancements because of the meta model-driven platform. Intuitive job submission and monitoring framework, secured integration with external entities and inbuilt encryption and rolebased access control support make our product stand out with a huge margin

Key features are:

1. Any AI Stack, Any AI Algorithm, Anywhere

2. Unified AI Orchestrator
3. Simplified User Experience
4. Intelligent Assistant for AI
5. Integrated Data Preparation AI Modelling Environment
6. Seamless Enterprise Security Integration

- GLens

GLens is a Real-Time Data Acquisition, Monitoring and Analytics suite of Products for Industrial Emissions, Effluent Discharges and Ambient Air Monitoring. GLens DAS Software, GLens Server Platform, GLens Environ Data Logger provides a comprehensive solution for all Industry Environmental needs. The platform connects to any analyser, sensor or device in a plug and play model acquiring data in real time. The key features of GLens are:

1. Rest based open protocol for multi-client deployment.
2. Real time alerts and alarms with SMS and Email integration.
3. Remote calibration and configuration of analyzers.
4. Plug and play complete protocol integration with any analyzer make and model. – Integrated and data quality codes as per ISO 7168.
5. Integrated analytics and predictive models for effective pollution control.
6. Live consolidated industry dashboards.

### **1.2.2 Services**

- Big Data Engineering Services

We provide end to end Architecture, Design, Development, Testing and Deployment of Big Data Protects. beginitemize

- Big Data Security Services

We are one of the niche consulting companies to provide specialized Big Data Services.

- Big Data Analytics Services

We deliver hidden insights from a wide variety of data sources using our pre-build analytical Lens.

- Big Data Competency Development

Without unique Big Data expertise, we provide one of the best Big Data Competency Development programs for the enterprise.

# Chapter 2

## Literature Survey

Literature review is the comprehensive study and interpretation of literature that relates to a particular topic. When one uses literature review research questions are identified, then one seek to answer this research questions by searching for and analyzing relevant literature. Some importance of literature reviews is that new insights can be developed by the re-analyzing the results of the study. A literature review is both a summary and explanation of the complete and current state of knowledge on a topic as found in academic books and journal articles.

There are two kinds of literature reviews might write at university: one that students are asked to write as a stand-alone assignment in a course, and the other that is written as part of an introduction to, or preparation for, a longer work, usually a thesis or research report. The focus and perspective of your review and the kind of hypothesis or thesis argument you make will be determined by what kind of review you are writing. One way to understand the differences between these two types is to read published literature reviews or the first chapters of theses and dissertations in your own subject area. Analyses the structure of their arguments and note the way they address the issues.

### 2.1 Purpose of the Literature Review

1. It gives readers easy access to research on a particular topic by selecting high quality articles or studies that are relevant, meaningful, important and valid and summarizing them into one

complete report.

2. It provides an excellent starting point for researchers beginning to do research in a new area by forcing them to summarize, evaluate, and compare original research in that specific area.
3. It ensures that researchers do not duplicate work that has already been done.
4. It can provide clues as to where future research is heading or recommend areas on which to focus.
5. It highlights the key findings.
6. It identifies inconsistencies, gaps and contradictions in the literature.
7. It provides a constructive analysis of the methodologies and approaches of other researchers.

## **2.2 Related works**

Here, we take some of the papers related to KL ONBOARDING : PROJECT MANAGEMENT SYSTEM

From the Fortune 500 companies to solopreneurs, more and more organizations and working professionals are using online task management app to stay focused and on top of things. There are some incredible task management apps available in the market. To make things easier, we have compiled a list of tools that make task organization, visual planning and scheduling easier and faster[1].

“Task management app”. It’s basically a web-based platform that allows everyday users and businesses to manage their to-do lists in the most efficient manner. It provides you with the tools to create, assign, collaborate, track, and deliver tasks within the desired time frame and quality standards[5].

- 1.ProofHub

ProofHub is an advanced task management software that gives you full control over your tasks and helps you manage your projects effectively. Whether you’re a team manager or

member, it acts as one place for all your projects, teams, and communications. ProofHub lets you stay in ultimate control of projects, remote teams and clients even when you are on the go.

It is a saas based project management software that fits perfectly in every work culture. It solves the four major challenges that every team faces in their projects - Planning, Collaboration, Organization and Delivering them on time.

Can plan projects like a pro using tasks, gantt charts, calendar, custom roles and more. Features like Group chat, Online discussions and Proofing tool can help in collaboration within the team as well as with clients over critical matters. With in-built notes, files and quickies and some amazing third party integrations, you are going to face no problem in keeping your project information organized. And, there are reports, timer timesheets and milestones to make sure that teams complete their projects on time. Everything you are ever going to need to manage your team and projects in the best possible manner is available in ProofHub!

Use of ProofHub:

1. ensuring effective task management
2. making review and approval process faster and more collaborative
3. clear insights with dynamic reports

Everything we are ever going to need to manage team and projects in the best possible manner is available in ProofHub[4]

- 2. Workfront

Workfront is a great tool to manage tasks and keep things organized. Workfront combines project management, intelligent work automation, and in-context collaboration so your team can do the right work, and deliver that work faster[7].

Use of Workfront :

1. managing digital content in a single location
2. centralizing projects to increase transparency and encourage collaboration
3. customizing platform for the way you work

- 3. Ticktick

Ticktick is a popular to-do list, checklist, and task manager application. Millions of people are already using this task management app to capture ideas, organize to-dos, and make the most of life. It comes with a clean interface that enables users to manage tasks easier, faster, and better. It supports real-time syncing across multiple platforms. It can be easily integrated with third-party calendars and works well with Siri too[9].

Use of Ticktick :

1. Creating tasks, lists, and reminders
2. Drag and drop a task to set a due date in Calendar
3. Sharing lists, assign tasks to collaborate can use fascinating themes

- 4. Podio

Podio is a customizable work management solution that leaders trust and employees love working on. With content, conversations, and processes structured and together on one tool, Podio creates the focus and clarity your people need to get their best work done[6]

Use of Podio :

1. Granular admin capabilities to control the access to your Podio workspace
2. Advanced workflows to create specific automation
3. Streamline and sync projects and workflows

- 5. Samepage

Samepage is one of those tools that make task management easier and faster. Share and edit content on living pages with other team members in real time. Whether it's video conferencing, team chats, direct messaging – whatever your communication preferences are, Samepage has got you covered[2].

Use of Sampire :

1. Set priority, deadlines, recurrence, and reminders
  2. Drag and drop files on a page and edit them online
  3. Can visualize task progress in real-time
- 6. Flow

Flow is a beautiful, flexible project and task management software. It can be easily customized to any workflow or project-type. It lets teams plan ahead, set priorities, and track projects from start to finish. Visually map out tasks and deadlines, share your plan with your team and easily update it as work progress and things change[9].

Use of Flow :

1. Can visually map out tasks and deadlines
  2. Track the progress with Projects Dashboard
  3. Use advanced search and filters to focus in on anything
- 7. Workboard

Workboard is a task management solution that provides a way to be aligned, fully engaged, and easily working towards the results at a high speed[8]

Use of Workboard :

1. Iterate, cascade and measure strategic priorities easily
  2. Get continuous visibility on plan vs. actual
  3. Access built-in collaboration boards and connectors
- Prioritize the tasks

For prioritization to have any meaning, it's imperative to have a clear objective. The overall objective may be to achieve a decisive victory[1]. The role of prioritization is to help to achieve this result with as little effort as possible. The second consideration is the resources available. Personal resources include time, money, social network, physical energy, and so on. Time is generally the scarcest resource because it cannot be replenished. In order to

prioritize intelligently, a method is required that tells how to evaluate projects in terms of overall importance and also tells about which projects will help to achieve the objectives most efficiently.

# Chapter 3

## Methodology

KL ONBOARDING:PROJECT MANAGEMENT SYSTEM, this project mainly aims to help internal stakeholders with the onboarding process of employees to the various projects and keep a track of it. Currently the entire onboarding process is done manually using the excel sheets which is a time consuming process.As the company grows it would become difficult to manage the entire process manually using excel sheets and so the main purpose of this application is to make this process much easier for the stakeholders.There is a basic login page for logging into the application.

Once the user is logged in, by default it will display the dashboard screen.All the existing projects will be listed there and the cumulative status will be also display.The individual status of each project will also be displayed as a pie chart. The second section is Onboard where we have the option to create new project requirements.Once a new requirement has been created it comes under the Ongoing tab.Also there is an Active and an Inactive tab which lists all the active (all the requirements are met) and inactive (closed or expired) project details.The requirements posted corresponding to each project will be listed as cards and the employees matching the requirements can be selected from the employee directory list.The selected employees can either be approved or rejected.Once they are approved all the corresponding details need to be filled and then the SOW status also needs to be approved, then an SOW will be created based on this.Once the SOW is created the project automatically comes

to the pending section which requires approval and all the approved projects will be listed under the active section. Here there we have options to view the candidates corresponding to each project, close the project and renew the project if the date is close to expiry. There is an option to off board candidates from the candidate list section corresponding to each project. Off boarding can also be done by searching employees from the list of all the on boarded employees. The employee directory screen lists the details of all the employees in the organization.

### **3.1 System Architecture**

The system architectural design is used to abstract the overall outline of the software system and the relationships, constraints, and boundaries between components. It is an important tool as it provides an overall view of the physical deployment of the software system. The architecture diagram provides an overview of an entire system, identifying the main components that will be developed for the product and their interfaces.

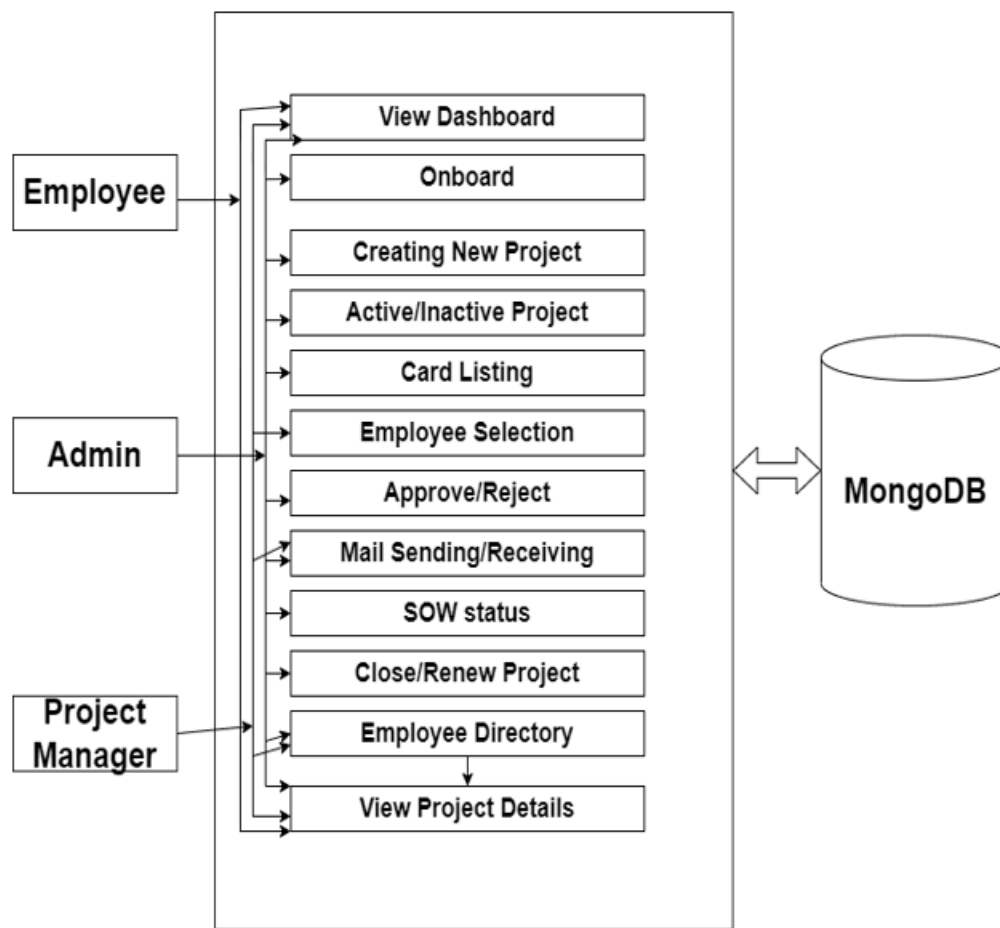


Figure 3.1: System Architecture

#### – Dashboard

Once the user is logged in, by default it will display the dashboard screen. All the existing projects will be listed here and the cumulative status will be displayed here. The individual status of each project will also be displayed as a pie chart

#### – Onboard

The second section is Onboard where we have the option to create new project requirements. Once a new requirement has been created it comes under the Ongoing tab. Also

there is an Active and an Inactive tab which lists all the active (all the requirements are met) and inactive (closed or expired) project details

- Employee Selection

The requirements posted corresponding to each project will be listed as cards and the employees matching the requirements can be selected from the employee directory list

- Employee directory

The employee directory screen lists the details of all the employees in the organization

- Approve/Reject

The selected employees can either be approved or rejected. Once they are approved all the corresponding details need to be filled and then the SOW status also needs to be approved, then an SOW will be created based on this.

- Mail Sending/Receiving

Once the employee is shortlisted employee will get a mail for filling form .with in that form employee can add their additional skills and updated resume after that project manager will get a mail according to that employee ,after final aprovement from development fficer employee will get a confirmation mail.

- SOW

Once the SOW is created the project automatically comes to the pending section which requires approval and all the approved projects will be listed under the active section. Here there we have options to view the candidates corresponding to each project, close the project and renew the project if the date is close to expiry.

- Offboard

There is an option to off board candidates from the candidate list section corresponding to each project. Off boarding can also be done by searching employees from the list of all the on boarded employees.

## **3.2 Software requirements and specification**

The software used for the project:

The application development architecture recognized for this project is specified in this section on the basis of requirements.

- Programming Language : Python
- Framework : React
- Web server : Apache
- Web Browser : Any web browser
- Backend : Fast Api
- Database: MongoDB

### **1.PYTHON**

Python is an object-oriented language control users to manage and management data structures or objects to make and run programs. Everything in Python is, in fact, top-notch. All objects, data types, functions, methods, and classes take an equal position in Python. Programming languages are created to satisfy the requirements of programmers and users for an efficient tool to develop applications that impact lives, lifestyles, economy, and society. they assist build lives better by increasing productivity, enhancing communication, and rising potency. Languages die and become obsolete once they fail to live up to expectations and are replaced and superseded by languages that are more powerful. Python programming language artificial language that has stood the test of time and has remained relevant

across industries and businesses and among programmers, and individual users. it's a living, thriving, and extremely helpful language that's extremely recommended as a primary programming language for those that want to dive into and experience programming.

### **Browser incompatibilities**

When a user receives a page which incorporates JavaScript, the JavaScript interpreter of his browser kicks in and tries to execute the script. Currently, the main downside here is that the assorted browsers each use their own interpreter, which generally browser vendors have chosen to not implement a bit of JavaScript. Their reasons were typically associated with a business advantage over the competitors. therefore the dreaded browser incompatibilities. In addition, every new browser version understands more JavaScript and permits more and more components of the HTML page to be modified by scripts. This results in even more incompatibilities. It is best to resolve compatibility issues on a case by case basis. In fact, most pages on this website have been written precisely thanks to browser incompatibilities. So scan on to know more. But I warn you: you need to digest quite a ton of information. thus it is best to unravel the problem at hand and leave the rest of the knowledge alone till you need it.

- Python is Interpreted : Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.
- Python is Interactive : You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.
- Python is Object-Oriented : Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
- Python is a Beginners Language : Python is a great language for the beginner level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.
- an easy and intuitive language just as powerful as those of the major competitor

- open source, so anyone can contribute to its development
- code that is as understandable as plain English

## **2.MongoDB**

MongoDB is a cross-platform, document oriented database that provides, high performance, high availability, and easy scalability. MongoDB works on concept of database , collection and document. Database is a physical container for collections. Each database gets its own set of files on the file system. A single MongoDB server typically has multiple databases. Collection is a group of MongoDB documents. It is the equivalent of an RDBMS table. A collection exists within a single database. Collections do not enforce a schema. Documents within a collection can have different fields. Typically, all documents in a collection are of similar or related purpose. A document is a set of key-value pairs. Documents have dynamic schema. Dynamic schema means that documents in the same collection do not need to have the same set of fields or structure, and common fields in a collection's documents may hold different types of data.

## **3.React**

React also known as React.js or ReactJS is a free and open-source front-end JavaScript library for building user interfaces based on UI components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies. React can be used as a base in the development of single-page, mobile, or server-rendered applications with frameworks like Next.js. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

The main objective of ReactJS is to develop User Interfaces (UI) that improves the speed of the apps. It uses virtual DOM (JavaScript object), which improves the performance of the app. The JavaScript virtual DOM is faster than the regular DOM. We can use ReactJS on the client and server-side as well as with other frameworks. It uses component and data patterns

that improve readability and helps to maintain larger apps.

### **3.2.1 System Design**

Design has been described as a multi-step process that is a representation of data structure, program structures, interface characteristics and procedural detail synthesized from information requirements. Design serves as a foundation for all software engineering and maintenance step that follows. It is an activity concerned with making decision, often of a structural nature. Design builds coherent well-planned representations of programs that concentrate on the Interrelations of parts at the higher level and the logical operations involved at the lower levels. Depending on the applications and project requirements a good design is one, which allows efficient code to be produced and whose implementation is compact as possible.

Design elements describe the desired software features in detail, and generally include functional hierarchy diagrams, screen layout diagrams, tables of business rules, business process diagrams, pseudo code, and a complete entity-relationship diagram with a full data dictionary. These design elements are intended to describe the software in sufficient detail that skilled programmers may develop the software with minimal additional input design.

The fundamental design concept specifies the following methods to develop a project are:

- Abstraction
- Modularity
- Software Architecture
- Structural Partitioning
- Data Structure
- Software Procedure

There are two levels of system design:

- Logical design

- Physical design

In logical design, the designer produces a specification of the major features of the system which meet the objectives. The physical design gives the actual design of the system.

### **Design Concepts**

The design concepts provide the software designer with a foundation from which more sophisticated methods can be applied. A set of fundamental design concepts has evolved. They are:

- Abstraction

Abstraction is the process or result of generalization by reducing the information content of a concept or an observable phenomenon, typically in order to retain only information which is relevant for a particular purpose.

- Refinement

It is the process of elaboration. A hierarchy is developed by decomposing a macroscopic statement of function in a stepwise fashion until programming language statements are reached. In each step, one or several instructions of a given program are decomposed into more detailed instructions. Abstraction and Refinement are complementary concepts.

- Modularity

Software architecture is divided into components called modules.

- Software Architecture

It refers to the overall structure of the software and the ways in which that structure provides conceptual integrity for a system. Good software architecture will yield a good return on investment with respect to the desired outcome of the project, e.g. in terms of performances, quality, schedule and cost.

- Control Hierarchy

A program structure that represents the organization of a program Component and implies a hierarchy of control.

- Structural Partitioning

The program structure can be divided both horizontally and vertically. Horizontal partitions define separate branches of modular hierarchy for each major program function vertical partitioning suggests that control and work should be distributed top down in the program structure.

- Data structure

It is a representation of the logical relationship among elements of data • Software Procedure - It focuses on the processing of each module individually

- Information Hiding

Modules should be specified and designed so that information contained within a module is inaccessible to other modules that have no need for such information. Major Activities Carried out during Design Phase includes the following:

- Logical Design

- UMI Diagrams

- Architectural Design

- Module Design

- Database Design

- User Interface Design

- Input Design

- Output Design

## Chapter 4

### Result And Discussion

Software Testing is a method to check whether the actual software product matches expected requirements and to ensure that the software product is Defect free. It involves the execution of software or system components using manual or automated tools to evaluate one or more properties of interest. The purpose of software testing is to identify errors, gaps, or missing requirements in contrast to actual requirements. The ultimate aim is quality assurance. Tests are carried out and the results are compared with the expected document. In the case of erroneous results, debugging is done. Tested software product ensures reliability, security, and high performance which further results in time-saving, cost-effectiveness, and customer satisfaction. The main goal of this project stage is to develop a churn prediction model. Specialists usually train numerous models, tune, evaluate, and test them to define the one that detects potential churners with the desired level of accuracy on training data.

In KL ONBOARDING software testing plays a key role. In this project there are two approaches to software testing i.e. Manual Testing and Automated Testing which are used to detect the faults. There are numbers of automated software testing tools available with different purposes, but it is always a problem to select a software testing tool according to the needs. Web service is broadly utilised idea these days due to quick promotion of Web services and less literature is accessible with respect to web admin-

istration's performance. Web applications are hard to test in contrast with customary applications particularly as far as Performance testing, for example, unpredictable load, response time and so on. Performance parameters results generated by performance testing tools have been evaluated and assessed in terms of usability test parameters performance parameters.

## **4.1 Types Of testing used in KL ONBOARDING**

website testing is checking web application or website for potential bugs before its made live and is accessible to general public. Web Testing checks for functionality, usability, security, compatibility, performance of the web application or website. Types Of testing used in KL ONBOARDING are:

- \* Functionality Testing
- \* Usability testing
- \* Interface Testing
- \* Database Testing
- \* Compatibility testing
- \* Performance Testing
- \* Security testing
- \* Crowd Testing

## **4.2 Functionality Testing**

Functionality Testing of KL ONBOARDING is a process that includes several testing parameters like user interface, APIs, database testing, security testing, client and server testing and basic website functionalities. Functional testing is very convenient and it allows users to perform both manual and automated testing. It is performed to test the functionalities of each feature on the website. Functionality testing Activities includes:

### **4.2.1 Test Links**

As part of functionality testing tested all links in KL ONBOARDING are working correctly and made sure there are no broken links. Links that are checked include –

- \* Outgoing links
- \* Internal links
- \* Anchor Links
- \* MailTo Links

### **4.2.2 Test Forms**

Scripting checks on the form are working as expected. For example- if a user does not fill a mandatory field in a form an error message is shown. Check default values are being populated Once submitted, the data in the forms is submitted to a live database or is linked to a working email address Forms are optimally formatted for better readability.

### **4.2.3 Test Cookies**

Test Cookies are working as expected. Cookies are small files used by websites to primarily remember active user sessions so do not need to log in every time visit a website. Cookie Testing include

- \* Testing cookies (sessions) are deleted either when cache is cleared or when they reach their expiry.
- \* Delete cookies (sessions) and test that login credentials are asked for when you next visit the site.

### **4.2.4 Test HTML and CSS**

Test HTML and CSS ensured that search engines can crawl site easily. This included

- \* Checked Syntax Errors

- \* Readable Color Schemas
- \* Standard Compliance. Ensured standards such W3C, OASIS, IETF, ISO, ECMA, or WS-I are followed.

#### **4.2.5 Test business workflow**

- \* Tested end – to – end workflow/ business scenarios which takes the user through a series of webpages to complete.
- \* Tested negative scenarios as well, such that when a user executes an unexpected step, appropriate error message or help is shown in web application.

### **4.3 Usability Testing**

#### **4.3.1 Test the site Navigation**

Menus, buttons or Links to different pages on KL ONBOARDING sh is easily visible and consistent on all webpages

#### **4.3.2 Test the Content**

Content in KL ONBOARDING is legible with no spelling or grammatical errors. Images presented on site contain an “alt” text

### **4.4 Interface Testing**

Three areas tested here are – Application, Web and Database Server

- \* Application: Test requests are sent correctly to the Database and output at the client side is displayed correctly. Errors if any caught by the application shown only to the administrator and not the end user.
- \* Web Server: Test Web server is handling all application requests without any service denial.

- \* Database Server: Made sure queries sent to the database give expected results.

Test system response when connection between the three layers ( Application, Web and Database ) cannot be established and appropriate message is showed to the end user.

## **4.5 Database Testing**

- \* Tested if any errors are showed while executing queries
- \* Data Integrity is maintained while creating, updating or deleting data in database.
- \* Checked response time of queries and fine tuned them if necessary.
- \* Test data retrieved from database is showed accurately in web application.

## **4.6 Compatibility testing**

Compatibility tests ensured that KL ONBOARDING web application displays correctly across different devices. This would included-

- \* Browser Compatibility Test:

Same website in different browsers will display differently. Because of that we need to test if web application is being displayed correctly across browsers, JavaScript, AJAX and authentication is working fine. Also want to check for Mobile Browser Compatibility.

The rendering of web elements like buttons, text fields etc. changes with change in Operating System. Made sure KL ONBOARDING website works fine for various combination of Operating systems such as Windows, Linux, Mac and Browsers such as Firefox, Internet Explorer, Safari etc.

## **4.7 Performance Testing**

By doing this testing ensured KL ONBOARDING works under all loads. Software Testing activities will include but not limited to –

- \* Website application response times at different connection speeds
- \* Load test website to determine its behavior under normal and peak loads
- \* Stress test web site to determine its break point when pushed to beyond normal loads at peak time.
- \* Tested if a crash occurs due to peak load, how does the site recover from such an event
- \* Made sure optimization techniques like gzip compression, browser and server side cache enabled to reduce load times

## **4.8 Security testing**

Security Testing is vital for KL ONBOARDING website that store sensitive employee information and company project details like employee skills ,company details,project providing organization,company strategies. Testing Activities included-

Tested unauthorized access to secure pages should not be permitted

Restricted files should not be downloadable without appropriate access

Checked sessions are automatically killed after prolonged user inactivity

On use of SSL certificates, website should re-direct to encrypted SSL pages

## **4.9 Crowd Testing**

Selected a large number of people (crowd) to execute tests for avoiding website have been executed a select group of people in the company. Crowdsourced testing is an interesting and upcoming concept and helped unravel many a unnoticed defects.

## **4.10 Implementation**

Implementation is the process of having the system personnel check out and put new equipment to use, train the users to use the new system and construct any file that are

needed to see it. The final and impartment phases in the system life cycle are the implementation of the new system. System implementation refers to the steps necessary to install a new system to put into operation. The implementation has different meaning, ranging from the conversion of a basic application to complete replacement of computer system. Implementation includes all these activities that take place to convert from old system to new one. The new system may be totally new replacing an existing manual or automated system or it may be major modification to an existing system. The methods of implementation and time scale adopted are found out initially. The system is tested properly and at the same time the users are trained in the new procedure.<sup>33</sup> Proper implementation is essential to provide a reliable system to meet organizational requirements. Successful implementations may not guarantee improvement in the organization involves the following things:

- \* Careful planning
- \* Investigation of the system and constraint
- \* Design the methods to achieve the change over
- \* Train the staff in the changed phase
- \* Evaluation of change over method Implementation methods

There are several methods for handling the implementation and consequent conversation from the old to new automated system. The most secure way for this conversation is to run the old and new system in parallel. This method offers high security but the cost for maintaining the two systems in parallel is very high. Another method is direct cut over the existing system to an automated system. The change may take place within a week or within a day.

## **4.11 Implementation Phase**

It includes a description of all activities that most occur to implement the new system and put into operation. It consists of the following steps:

- \* List all files required for the implementation

- \* Identify all data required to build new files during the implementation
- \* List all new document and procedure that go to the new system

## **4.12 Validation**

The process of evaluating software during or at the end of the development process to determine whether it satisfies specified requirements. Validation is the process of evaluating the final product to check whether the software meets the customer expectations and requirements. It is a dynamic mechanism of validating and testing the actual product.

Validation is the process of checking whether the specification captures the customer's needs. "Did I build what I said I would?". Validation uses methods like black box (functional) testing, gray box testing, and white box (structural) testing etc. It can catch errors that verification cannot catch. It is High Level Exercise. target is actual product-a unit, a module, a bent of integrated modules, and effective final product. Validation is carried out with the involvement of a testing team.

## **4.13 Output Screens and Results**

- \* Login page:  
When user hits the URL this page is loaded
- \* Landing page: it includes

## 1. Dashboard

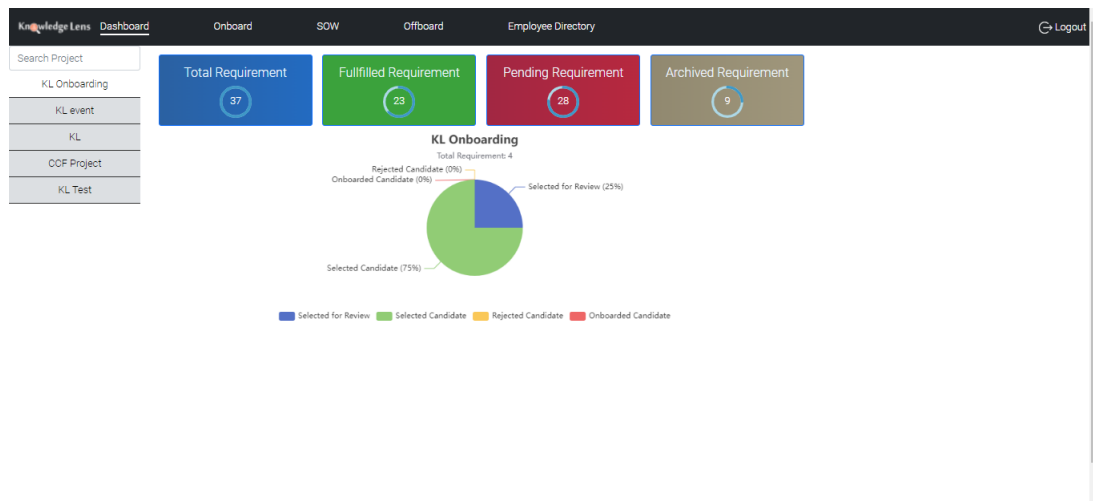


Figure 4.1: Dashboard

## 2. Onboard

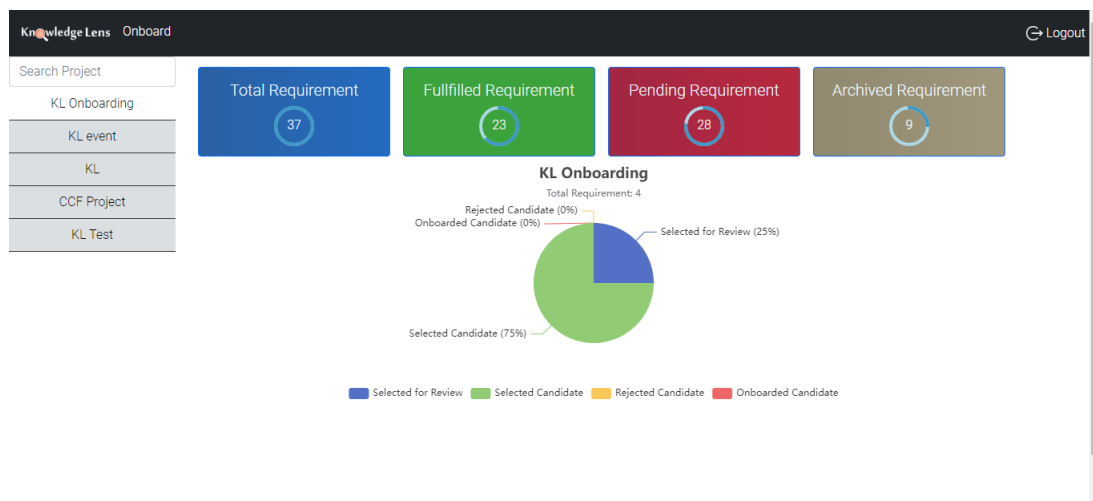


Figure 4.2: Onboard

### 3. Add New Project

The screenshot shows the 'Add New Project' modal form. The form contains the following fields and sections:

- Project Name \***: Text input field.
- Firm \***: Text input field.
- Requester \***: Text input field.
- PD Manager \***: Text input field.
- Mentor \***: Text input field.
- Expected Start Date \***: Date input field (format: dd-mm-yyyy).
- Expected End Date**: Date input field (format: dd-mm-yyyy).
- Positions**: A section with four sub-sections:
  - Position**: Text input field.
  - Experience Required**: Text input field.
  - Skills**: Text input field.
  - Resource Count**: Text input field.

At the bottom right of the modal are 'Close' and 'Add' buttons.

Figure 4.3: Add New Project

### 4. SOW

The screenshot shows the 'SOW' table with the following data:

| Project ID | Project Name | Requester | Firm | PD Manager | Mentor  | Expected Start Date | Expected End Date | Requirement Initiated On | Action  |
|------------|--------------|-----------|------|------------|---------|---------------------|-------------------|--------------------------|---|
| 286        | kl           | Sampath   | KL   | Amal       | Sareesh | 14-04-2022          | 06-05-2022        | 25-04-2022               | <a href="#">Request</a> <a href="#">Approve</a> |

Figure 4.4: SOW

## 5. SOW Active

| Knowledge Lens Dashboard      Onboard <u>SOW</u> Offboard      Employee Directory <a href="#">Logout</a> |               |                |      |               |               |                     |                   |                          |  |
|--|---------------|----------------|------|---------------|---------------|---------------------|-------------------|--------------------------|--|
| Pending <b>Active</b> Archived   |               |                |      |               |               |                     |                   |                          |  |
| Project ID   | Project Name  | Requester      | Firm | PD Manager    | Mentor        | Expected Start Date | Expected End Date | Requirement Initiated On | Action   |
| 283  | KL Onboarding | Sampath Shetty | KL   | Amal G Jose   | Rahul         | 02-05-2022          | 27-05-2022        | 22-04-2022               | <a href="#">View</a> <a href="#">Delete</a> <a href="#">Edit</a> |
| 284  | KL event      | Sudheesh       | KL   | Amal          | Sareesh       | 22-04-2022          | 01-05-2022        | 22-04-2022               | <a href="#">View</a> <a href="#">Delete</a> <a href="#">Edit</a> |
| 291  | KL Test       | Amal           | KL   | Sareesh       | Sheethal      | 14-04-2022          | 30-04-2022        | 27-04-2022               | <a href="#">View</a> <a href="#">Delete</a> <a href="#">Edit</a> |
| 290  | CCF Project   | Raghav Sharma  | ZS   | Raghav Sharma | Akash Pendkar | 04-05-2022          | 30-06-2022        | 26-04-2022               | <a href="#">View</a> <a href="#">Delete</a>                      |
| 285  | KL            | tarun          | KL   | tarun         | tarun         | 23-04-2022          | 29-04-2022        | 23-04-2022               | <a href="#">View</a> <a href="#">Delete</a> <a href="#">Edit</a> |

localhost:3000/onboarding#

Figure 4.5: SOW Active

# Chapter 5

## Conclusion

The KL ONBOARDING project aimed to replace the entire onboarding process ,previous manual excel sheets which is a time consuming process.As the company grows it would become difficult to manage the entireprocess manually using excel sheets and so the main purpose of this application is to make thisprocess much easier for the stakeholders.It help internal stakeholders with the onboarding process of employees to the various projects and keep a track of it.

To begin with, like most employees, have at least 20 different tasks and activities in their to-do list for the day. Now, not every task in list holds the same significance as the other.This is where practices like task management and time management prove most useful.Onboarding management is deemed extremely important for every project manager and team because it allows them to keep a close eye on their priorities and become more productive each day. With the right task management it's easier to set priorities, explore the art of delegation, communicate directly on tasks, track task progress in real-time, and stay on top of routine work.

## **5.1 Advantages**

The key Features are :

- \* Flexibility and scalability
- \* Improved communication and accessibility
- \* High-level project planning
- \* Detailed project estimates and task schedules
- \* Effective resource allocation
- \* Centralized documentation and file management
- \* Accurate tracking
- \* Replace manual onboarding process
- \* Minimize the usage of excel sheets
- \* Make the onboarding process much easier for the stakeholders.

## **5.2 Future Enhancement**

The system is designed in such a way that addition of new modules can be done without much difficulty. The reconstruction of the application will increase the flexibility of the system. The system has been developed as versatile and user friendly as possible keeping in mind the advanced features in this technology. Now in the system employees have less access . In the future, can develop a system for employee status updation and review of that employee,new industry categories, parameters and can be easily added to the system without much refactoring.

# References

- [1] Aleshin A "Time And Risk Management Of International Projects" International journal of project management no.19 , pp. 207- 222, 2014.
- [2] J.P. Bouchaud, M. Potters, "Theory of Project Prioritization Techniques", Cambridge University Press, Cambridge, 2010.
- [3] ). Instant Messaging and Interruption: Influence of Task Type on Performance. Proceedings of OZCHI 2000, 356-361.
- [4] Christina Anand, "Online Task Assignment And Management, HR Tech, Insights, Tech and Business.
- [5] Vartika Kashyap,"Best task management apps-Keep your business on track.
- [6] .Drake Baer "Dwight Eisenhower Nailed A Major Insight About Productivity", Business Insider, 2014
- [7] Ellis, J. Kvavilashvili, L. (2000). Prioritization of tasks in 2000: Past, present and future directions. Task Management, 14, 1-9
- [8] Chambers, C.V., Balaban, D.J., Carlson, B.L., Ungemack, J.A. MPH Grasberger, D.M. (2013). Journal of Tasky Practice, 29(3), 273-280.
- [9] J.P. Bouchaud, M. Potters, "Theory of Project Prioritization Techniques", Cambridge University Press, Cambridge, 2010.
- [10] Bannon, L., Cypher, A., Greenspan, S., and Monty, M.(2011). Evaluation and analysis of users activity organization".In:proceeding of the CHI'83pp. 54-57). NY: ACM.
- [11] GAO Yan,GU Shiwen. Knowledge Semantic Model Based on Software Project Management [J].Computer Engineering, 2004(1):89-91.

- 
- [12] WANG Hongwei, Wu Jiachun. Study on Hierarchical Structure of Enterprise Knowledge and its Management Process [J]. RD Management ,2003(2):49-53.

# APPENDICES



**Knowledge Lens**  
Accelerating Actionable Insights

KL Onboarding Application

Email

Password

[Forgot Password ?](#)

Figure 5.1: login page

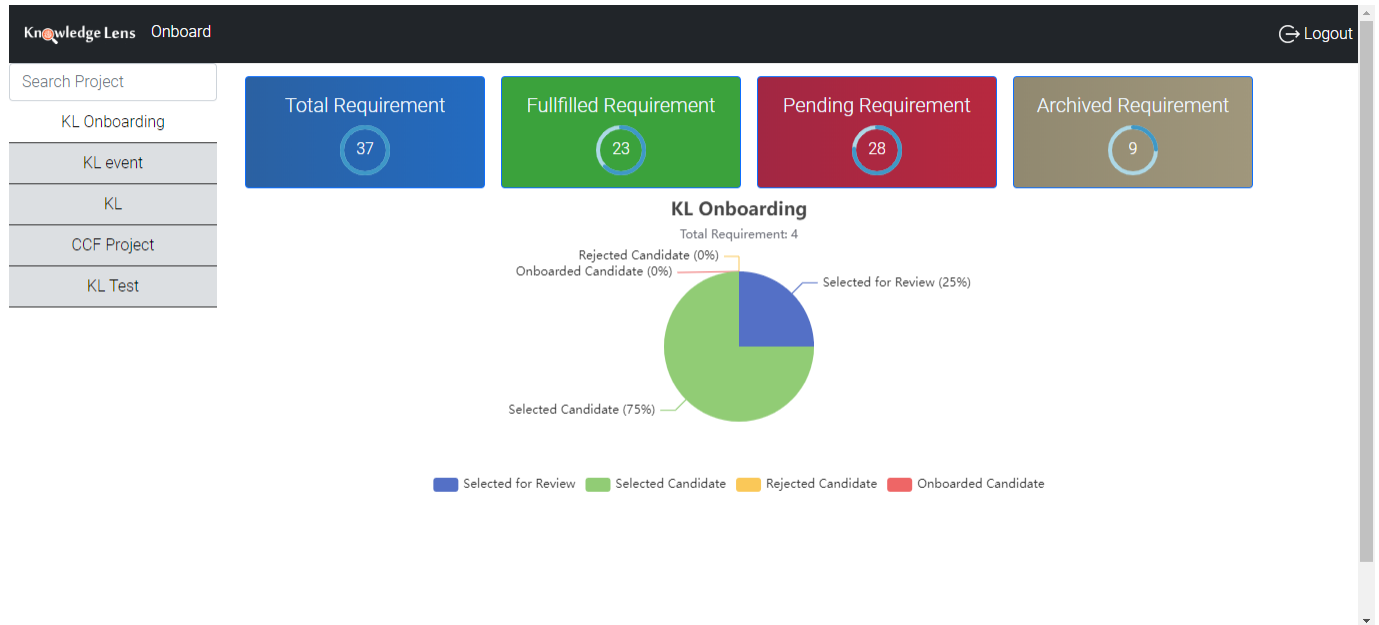
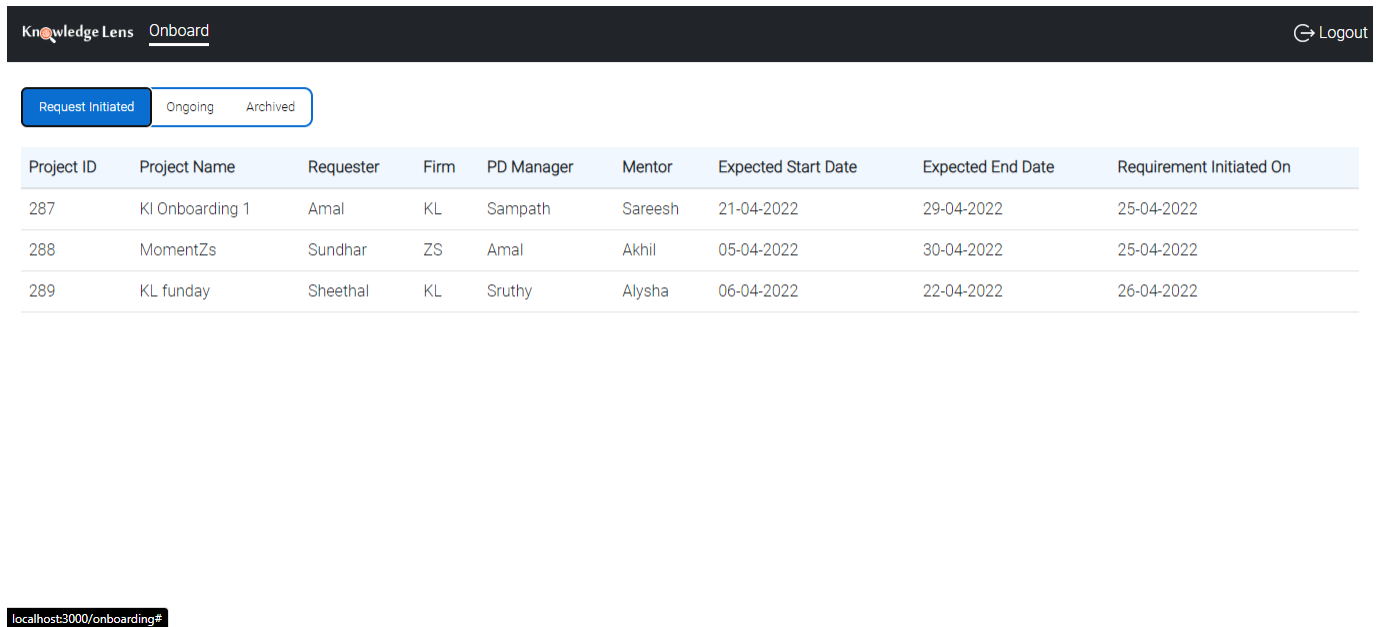


Figure 5.2: Dashboard

| Knowledge Lens Onboard <span>Logout</span>  |              |           |      |            |         |                     |                   |                          |   |
|---|--------------|-----------|------|------------|---------|---------------------|-------------------|--------------------------|---|
| <div>Request Initiated <b>Ongoing</b> Archived</div> <div>+ Add New Project</div> |              |           |      |            |         |                     |                   |                          |   |
| Project ID  | Project Name | Requester | Firm | PD Manager | Mentor  | Expected Start Date | Expected End Date | Requirement Initiated On | Action  |
| 286   | kl           | Sampath   | KL   | Amal       | Sareesh | 14-04-2022          | 06-05-2022        | 25-04-2022               | <a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a> <a href="#">Download</a> |

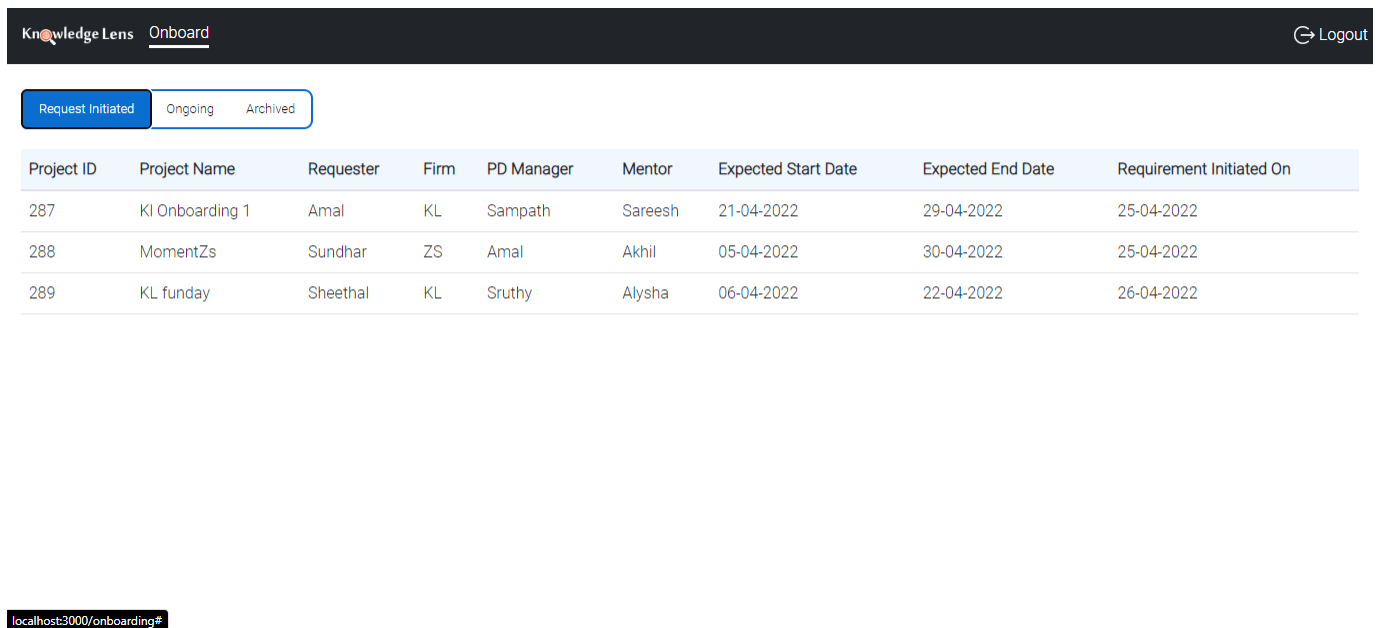
Figure 5.3: projects list



| Project ID | Project Name    | Requester | Firm | PD Manager | Mentor  | Expected Start Date | Expected End Date | Requirement Initiated On |
|------------|-----------------|-----------|------|------------|---------|---------------------|-------------------|--------------------------|
| 287        | KI Onboarding 1 | Amal      | KL   | Sampath    | Sareesh | 21-04-2022          | 29-04-2022        | 25-04-2022               |
| 288        | MomentZs        | Sundhar   | ZS   | Amal       | Akhil   | 05-04-2022          | 30-04-2022        | 25-04-2022               |
| 289        | KL funday       | Sheethal  | KL   | Sruthy     | Alysha  | 06-04-2022          | 22-04-2022        | 26-04-2022               |

localhost:3000/onboarding#

Figure 5.4: Requested



| Project ID | Project Name    | Requester | Firm | PD Manager | Mentor  | Expected Start Date | Expected End Date | Requirement Initiated On |
|------------|-----------------|-----------|------|------------|---------|---------------------|-------------------|--------------------------|
| 287        | KI Onboarding 1 | Amal      | KL   | Sampath    | Sareesh | 21-04-2022          | 29-04-2022        | 25-04-2022               |
| 288        | MomentZs        | Sundhar   | ZS   | Amal       | Akhil   | 05-04-2022          | 30-04-2022        | 25-04-2022               |
| 289        | KL funday       | Sheethal  | KL   | Sruthy     | Alysha  | 06-04-2022          | 22-04-2022        | 26-04-2022               |

localhost:3000/onboarding#

Figure 5.5: Archived

Knowledge Lens
Onboard
Logout

[Ongoing Project List](#) / [Candidates Review](#)

### Candidates Review

Backend
Add

2
2
Resources Count
Final Count

Front End
Add

1
0
Resources Count
Final Count

### Candidate Assessment

| Emp ID   | Candidate Name   | Project Name | Position | Status  | Action |
|----------|------------------|--------------|----------|---------|--------|
| H115-853 | Tarun madamanchi | kl           | Backend  | Pending |        |

### Onboard Status

| Candidate Name  | Project Name | Position | % of Allocation | Start Date | End Date   | Onboard Status |
|-----------------|--------------|----------|-----------------|------------|------------|----------------|
| Rahul Krishna K | kl           | Backend  | 90              | 19-04-2022 | 07-05-2022 | Completed      |

Figure 5.6: Candidate review