



Sri Lanka Institute of Information Technology

B.Sc. Honours Degree in Information Technology Field of specialization:

Information Systems Engineering

Automated Man Power Allocation By Performance Analysis and Project Categorization For  
Construction Projects

**User Acceptance Testing Document**

**Group ID: 24-25J-018**

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## 1. Executive Summary

In construction industry, there two types of manpower used as, employees and labor. Currently in the construction industry, this manpower is allocated to the construction projects.

### 1.1 Objectives

Our objective is to develop a web application,

1. To categorize the projects according to the entered project details as “High”, “Low”, “Medium”.
2. To Generate a KPI value for the recruited employees to the company by analysing the performance and CV details such as skills and experience.
3. To allocate the employees by optimizing matching the KPI values with the project categorization results.
4. To predict the labor count required for the project based on the project details.

### 1.2 Scope

Our client to this project is MAGA Engineering Pvt Ltd. In MAGA there are different types of construction projects going on.

1. Buildings
2. Highways & Bridges
3. Water & Wastewater
4. Irrigation

In this project we are considering about the **building** construction projects only.

### 1.3 Tools and Technologies Used

- Frontend: React.js
- Backend: Node.js
- Database: MySQL
- ML Model: Trained with Python (Scikit-learn, TensorFlow)
- Version Control: GitHub
- Project Management: MS Planner (via MS Teams)

- API Testing: POSTMAN

## **2. Objective of UAT**

The objective of User Acceptance Testing (UAT) is to validate that the Project Pulse system meets the defined business requirements and is fully functional for end users. UAT ensures that the application behaves as expected in real-world scenarios and confirms its readiness for deployment to the production environment.

### **2.1 Test Environment**

- Environment: Project Pulse React App
- URL: <http://localhost:3000/>
- Database: Project\_Pulse
- Browser: Google Chrome (latest)

### **2.2 Test Scope**

The following modules and features are included in this UAT cycle:

- Project categorization according to the project parameters such as budget, scope, timeline, and risk.
- KPI generation by CV and Performance analysis.
- Updating KPI by performance of the employee.
- Employee allocation according to the project categorization result and KPI Values.  
Labor Prediction according to the project parameters such as number of square feets, timeline, number of floors, number of doors, number of windows,
  - Histogram Upload & Update
  - Dashboard Overview
  - Attendance Management
  - Budget Comparison (Planned vs Actual)

### **2.3 Out of Scope**

- Performance and load testing
- API-level testing

## 2.4 Test Schedule

The following schedule outlines the key UAT activities:

*Table 1: Test Schedule*

Activity	Start Date	End Date
<b>UAT Planning &amp; Setup</b>	April 28, 2025	April 29, 2025
<b>Test Case Execution</b>	May 29, 2025	May 02, 2025
<b>Defect Retesting</b>	May 02, 2025	May 04, 2025
<b>UAT Sign-off</b>	May 05, 2025	May 05, 2025

### 3. Test Cases

Table 2: Test Cases

Test Case ID	Title / Scenario	Preconditions	Input / Steps	Expected Result	Actual Result	Status
<b>Project Categorization</b>						
TC_PD_001	Validate Project ID format	User is logged into the system and on the project details form	Project ID: PID-003	Project ID is accepted and does not trigger any validation error	Project ID accepted without any issue	Pass
TC_PD_002	Ensure mandatory field validation for Project Name	User is on the project entry form	Leave Project Name empty	System should show "Project Name is required"	Validation message displayed	Pass
TC_PD_003	Verify numeric field validation for Budget	Project form loaded	Budget = abc123	Validation error shown for invalid number	Error: "Please enter a valid amount"	Pass
TC_PD_004	Check if character limit is enforced in Overview	User is entering data in project form	Enter 1500 characters in Overview field	Characters exceeding the limit are blocked or warning shown	Warning shown at 1000 characters	Pass
TC_PD_005	Verify proper submission with all valid inputs	User fills out all fields correctly	Valid values for all fields	Project is saved successfully	Project submitted without errors	Pass

TC_P D_006	Display existing projects in the list	At least one project is saved in the database	Navigate to Project List page	List of projects is shown	All saved projects listed	Pass
TC_P D_007	Test search functionality by Project Name	Project with name "Green Homes" exists	Search for "Green Homes"	Matching project displayed	"Green Homes" shown in results	Pass
TC_P D_008	Verify Edit button opens pre-filled form	Projects are listed	Click on Edit icon of any project	Form opens with existing data prefilled	Form loaded with correct project data	Pass
TC_P D_009	Update and save project successfully	User on Edit Project form	Change Project Name and click Save	Data updated and confirmation shown	Project updated successfully	Pass
TC_P D_010	Verify Delete function removes project	Multiple projects listed	Click Delete icon on a project	Project is removed after confirmation	Project deleted and removed from list	Pass
TC_P D_011	Prediction result based on standard input	Project is selected and prediction feature available	Valid project parameters (budget, site condition, etc.)	Prediction result displayed	Prediction shown as expected	Pass
TC_P D_012	Show error if input values are incomplete	On prediction form	Leave one input (e.g. square feet) blank	Error or warning message	Warning displayed	Pass

TC_P D_013	Validate prediction output format	Prediction triggered	Submit all valid fields	Output shown as label/value (e.g., "Predicted Duration: 45 days")	Clear and readable prediction displayed	Pass
TC_P D_014	Verify prediction button is disabled until required fields are filled	Prediction form loaded	Fill only some fields	Prediction button remains disabled	Button inactive until form is complete	Pass
TC_P D_015	Confirm prediction updates when input changes	First prediction done	Change budget or duration input	New prediction generated	Updated prediction shown	Pass
<b>KPI Generation by CV and Performance Analysis</b>						
TC_C V_01	Upload valid CV	User is logged into the system and on the CV upload form	CV.pdf	CV stored successfully, success message shown	CV stored successfully, success message shown	Pass
TC_C V_02	Upload invalid file type	User is logged into the system and on the CV upload form	CV.exe	Error message: "Invalid file type"	Validation message displayed	Pass



TC_C V_03	Upload without filling required fields	User is logged into the system and on the CV upload form	Clicking upload button	Error: "Please select a file to upload"	Validation message displayed	Pass
TC_C V_04	Generate KPI from valid CV	Upload a valid CV	CV.pdf	KPI values generated based on CV data	KPI values generated based on CV data	Pass
TC_C V_05	Validate KPI generation logic	Use different CVs	CV2.pdf	Different KPIs should be generated according to skills and designations	Different KPI value is generated	Pass
TC_C V_06	Update KPI after project completion	Employee is allocated to a project	New Project data, KPI value	Updated KPI values reflecting new experience	New KPI value	Pass
<b>Employee Allocation and Optimization</b>						
TC_E A_001	Verify navigation to Employee Allocation Dashboard	User is logged into the system	Click on "Employee Allocation" from the left menu	System opens Employee Allocation Dashboard with buttons: "Allocate Employees" and "View	Dashboard loaded successfully with the correct buttons	Pass

				Employee Allocation"		
TC_E A_002	Verify project selection and KPI generation flow	User is on Employee Allocation screen	Select a project → Click "Generate"	Project name and categorization are displayed, job title selection enabled	Selected project shown with category and job title dropdown available	Pass
TC_E A_003	Verify KPI display and previously allocated employees for selected job title	Project selected and job title chosen	Select "Site Supervisor" → Click "Generate"	Suggested KPIs and previously allocated employees are shown	KPI displayed; previously assigned employee listed	Pass
TC_E A_004	Verify "All" job title selection shows all employee titles	Project selected	Select "All" from job title dropdown → Click "Generate"	All employee job titles with relevant data are displayed	All job titles shown with respective KPIs and employee lists	Pass
TC_E A_005	Allocate a new employee to a job title	Employee list is available for selected title	Click "Choose Employee" → Select employee → Click "Add"	Employee added under the selected job title	Selected employee appeared in the allocated list	Pass
TC_E A_006	Prevent adding same employee	Employee already	Attempt to re-add the	Error or warning	Validation message	Pass

	twice to the same job title	allocated to a job title	same employee	message: "Employee already allocated"	shown preventing duplicate allocation	
TC_E A_007	Remove an allocated employee	Employee is allocated to a job title	Click "Remove" beside the allocated employee	Employee removed from the list	Employee successfully removed	Pass
TC_E A_008	Display confirmation before removing an employee	Employee is allocated	Click "Remove" → Expect confirmation dialog	Confirmation popup: "Are you sure?"	Popup displayed before removal	Pass
TC_E A_009	View allocated employees for selected project	Employees allocated to project	Click "View Employee Allocation" → Select project	List of allocated employees is displayed	Employee list shown for selected project	Pass
TC_E A_010	Remove employee from View Allocation section	Employee appears in project allocation view	Click "Remove" next to employee	Employee is deleted from allocation	Employee successfully removed	Pass
TC_E A_011	Complete project and remove all employees	Employees allocated to project	Click "Complete Project"	All employee allocations for project are cleared	All employees removed, and confirmation shown	Pass

TC_E A_012	Check system behavior when no project is selected before generating	User skips project selection	Click "Generate" without selecting a project	Validation message: "Please select a projec	Error displayed prompting project selection	Pass
<b>Labor, Cost and Timeline Prediction</b>						
TC_PP _001	Verify Main Menu Buttons	User is logged in	Navigate to main menu	All 5 buttons are visible and functional	All buttons rendered and navigated correctly	Pass
TC_PP _002	Submit empty Labor Prediction form	On Labor Prediction page	Leave all fields blank and click 'View Predicted Labor'	Validation error shown for missing fields	Error displayed: "Please fill all fields."	Pass
TC_PP _003	Submit valid Labor Prediction form	On Labor Prediction page	Fill all fields with valid data and click 'View Predicted Labor'	Predicted labor data is shown	Bar chart displayed with labor category counts	Pass
TC_PP _004	Upload valid Excel file	On Histogram Upload page	Select project, upload valid Excel, click 'Upload Data'	Success message displayed	Upload succeeded: "Histogram data uploaded successfully."	Pass

TC_PP_005	Upload file without selecting project	On Histogram Upload page	Leave project blank, upload file, click 'Upload Data'	Error message for project selection	Error shown: "Please select a project."	Pass
TC_PP_006	Dashboard loads with project data	Project with data exists	Navigate to dashboard and select a valid project	Project info, charts and statuses are loaded	Dashboard populated with data and graphs	Pass
TC_PP_007	Save updated budget in histogram	On Histogram Update page	Update actual budget, click save	Data saved, status updated accordingly	Budget saved and status updated (e.g., to "Over Budget")	Pass
TC_PP_008	Mark attendance successfully	On Mark Attendance page	Select project, enter attendance counts, click Save	Attendance saved and confirmation shown	Counts saved with message "Attendance updated."	Pass
TC_PP_009	Try to mark attendance without entering data	On Mark Attendance page	Click Save without entering any counts	Validation message shown	Alert: "No attendance data entered."	Pass
TC_PP_010	Switch projects and check UI refresh	On any data screen with dropdown	Select a different project	UI refreshes with selected project data	New project details loaded correctly	Pass

			from dropdown			
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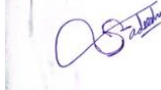

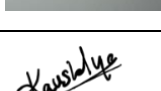
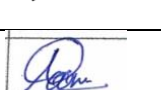
#### 4. Sign Off Sheet

The purpose of this sign-off section is to obtain formal acceptance from business stakeholders and UAT testers that the system meets all required business and functional expectations, and is ready for production deployment.

By signing this document, the signatories acknowledge that:

- All test cases outlined in the UAT plan have been executed.
- All critical and high-severity defects have been resolved or mitigated.
- The system demonstrates stability and aligns with the agreed-upon business requirements.
- Any remaining known issues are documented and accepted as non-blocking.

The stakeholders below approve the Project Pulse system for release to the production environment:

Name	Role	Signature	Date
Kavin Perera	BA/Dev/QA		05.05.2025
Sadeesha Isuranga	BA/Dev/QA		05.05.2025
Poorna Akil	BA/Dev/QA		05.05.2025
Kausalya Munagama	BA/Dev/QA		05.05.2025
Mr. Darshana Senevirathna	Project Manager from MAGA Pvt Ltd		05.05.2025

	(External Supervisor)		
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## Appendices

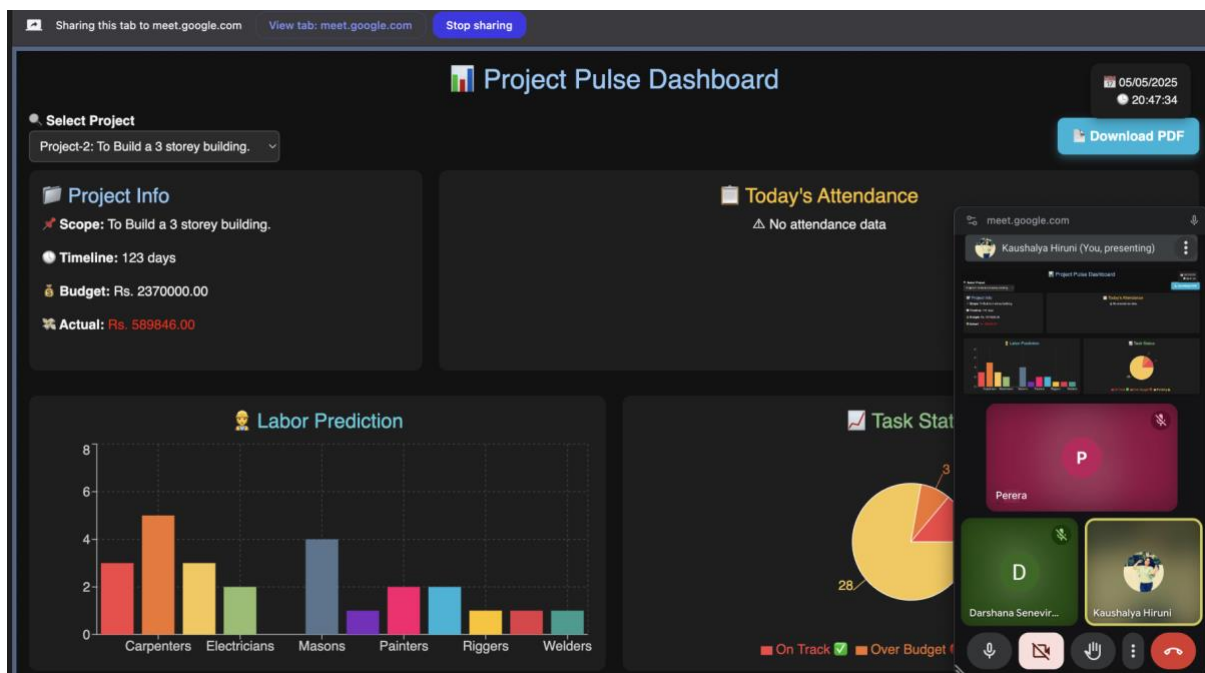


Figure 1: Google Meet Evidence with Mr.Darshana Senevirathna(External Supervisor)