TC Corp

Employee Recognition & Rewards System

Thang Tran & Carlos Melgar

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Milestone 1

Milestone 2

Service Request
TC Corp
System Service Request

Requested by: Carlos Melgar and Thang Tran
Department: Software and Human Resources
Location: Boston Ma
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Type or Request

[x] New System [ ] Immediate Operations are impaired or opportunity lost

[ ] System Enhancement [x] Problems exist, but can be worked around

[ ]System Error Correction [ ] Business losses can be tolerated until new system installed

Problem Statement

TC Corp currently does not have a way to recognize and reward employees for their achievement. We want to make it digital and easier to recognize people's strengths and accomplishments. We want to be able to implement it into Slack so the employees at TC Corp can interact and celebrate with each other through the app we all use to communicate!

Service Request

We propose developing a simple Employee Recognition & Reward System (ERRS) that allows co workers to recognize each other in a fun interactive way. This would be easy to implement into slack and create. Software would create a design model and use flask as a python framework or JavaScript Framework like React.

IS LIAISON: Edward Chen

SPONSOR: *Quang Tran* **Head of Software**

—----------To be completed by the board----------
[ ] Request Approved Assigned to: Start Date:
[ ] Recommend Revision
[ ] Suggest User Development
[ ] Reject for reason:

Project Scope

Mission:
To design and deploy a digital Employee Recognition & Reward System (ERRS) that fosters a positive work culture, improves employee morale, and encourages engagement. The system will be fully integrated into Slack, TC Corp's main communication platform, making it easy to access, adopt, and use without the need for additional software.

Objectives:

Recognize employees' achievements in real time across Slack channels.

Increase visibility and appreciation across departments.

Boost team collaboration through shared celebrations.

Provide measurable impact on morale and retention.

Scope Includes:

Development of ERRS using Flask or React.

Integration with Slack using Slack API.

Testing in one department before company-wide launch.

Implementation of leaderboards, badges, and gifs for interactive engagement.
Project Scenario

What is our current problem?

At TC corp we lack a structured system to recognize all of our employees at our company. We want to be able to recognize every employee in different slack channels which is our main communication through our different dependencies. Employees have been starting to feel underappreciated which is leading to lower morale and less engagement. We also have no digital platform for peer to peer recognition.

What is our proposed solution?

At TC Corp. we plan to develop an employee recognition system and reward system(ERRS). We want to integrate it into slack so everyone has access to it and no one has to download anything external aside from the slack app. This makes it an easy transition because everyone at our company uses slack to communicate with each other. We want to add images and gif elements like badges, leaderboards and shout outs to show who's putting in a lot of work and it will be a fun way for everyone. We want to design it so it is easy to adopt and not much training is needed.

What impact does this have on our company's culture?

This will encourage a more positive work environment for our employees. We want to push out things that will increase positivity and morale in an interactive fun way! This will increase employee satisfaction and retention. Strengthen collaboration across teams because you will even be able to shout out teams and not just individual people.

Project Feasibility

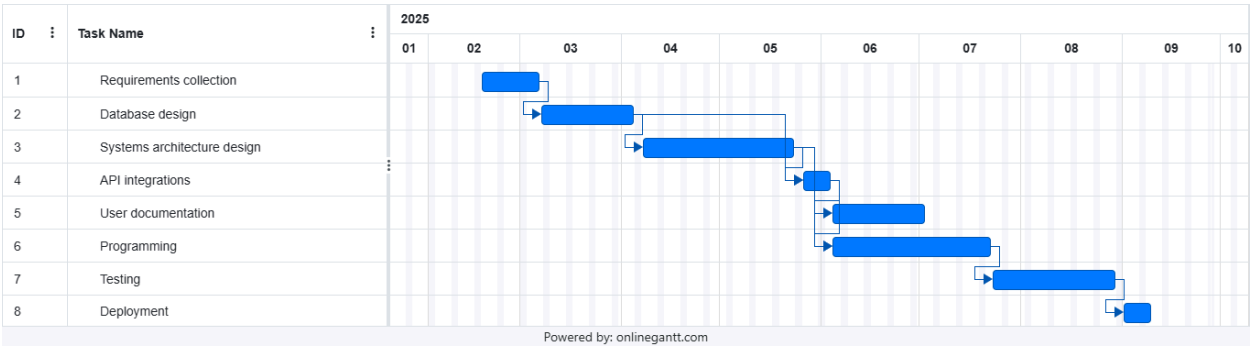
Factor	**Assessment**
Schedule Feasibility	A 29-week project timeline has been mapped out and broken into phases (requirements, design, development, testing, deployment). The timeline is realistic, with no slack in critical path activities, and includes buffer time for feedback and adjustments. The use of Microsoft Project to manage dependencies ensures we can track progress and adapt if

	necessary.
Operational Feasibility	Employees use slack daily
Political Feasibility	Higher management are likely to approve because it increases engagement
Legal Feasibility	No Risks because it aligns with HR policies
Technical Feasibility	Can be built by a software team then integrated by IT. Goal is to use python (flask) or JavaScript(React)

Project Task Management

Gantt Chart

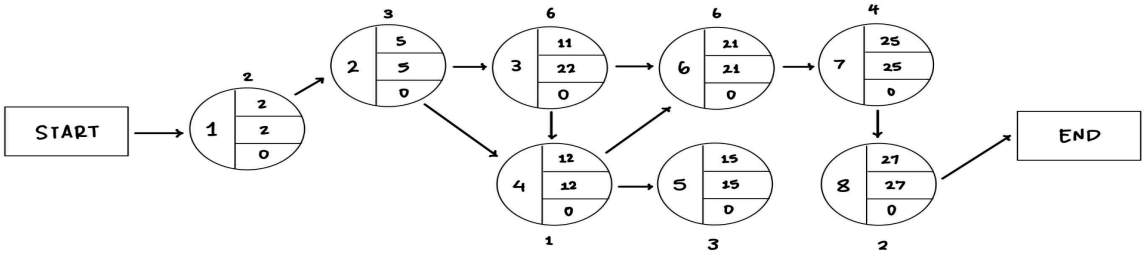
ID	Task Name	Duration	Start	Finish	Pred.	Slack	Critical
1	Requirements collection	**2 weeks**	**02/17/25**	**03/06/25**	**-**	**0**	**Yes**
2	Database design	**3 weeks**	**03/07/25**	**04/04/25**	**1**	**0**	**Yes**
3	Systems architecture design	**6 weeks**	**04/07/25**	**05/23/25**	**2**	**0**	**Yes**
4	API integrations	**1 week**	**05/26/25**	**06/03/25**	**2,3**	**0**	**Yes**
5	User documentation	**3 weeks**	**06/04/25**	**07/02/25**	**4**	**0**	**Yes**
6	Programming	**6 weeks**	**06/04/25**	**07/22/25**	**3,4**	**0**	**Yes**
7	Testing	**4 weeks**	**07/23/25**	**08/29/25**	**6**	**0**	**Yes**
8	Deployment	**2 weeks**	**09/01/25**	**09/09/25**	**7**	**0**	**Yes**



PERT chart

Activity	Te	Tl	Slack	Critical?
1.Requirements collection	**2**	**2**	**0**	**Yes**
2.Database design	**5**	**5**	**0**	**Yes**
3.Systems architecture design	**11**	**11**	**0**	**Yes**
4.API integrations	**12**	**13**	**1**	**No**
5.User documentation	**15**	**17**	**2**	**No**
6.Programming	**21**	**21**	**0**	**Yes**
7.Testing	**25**	**25**	**0**	**Yes**
8.Deployment	**27**	**29**	**2**	**Yes**

Slack Time



Tangible benefits

Tangible benefits worksheet
A.Reduction in employee complaints $18,000 B.Lower onboarding & training costs $15,000 C.Increased slack engagement $12,000 D.Higher employee retention rates $34,000
TOTAL tangible benefits: $79,000

One-time costs worksheet
A.Software development $30,000 B. Employee training and documentation $4,000 C. Slack API integration and automation $4,000 D. Marketing & launch event $2,000
TOTAL one-time costs: $40,000

Recurring costs
A.Recognition & rewards budget $6,000 B.Slack API hosting costs $5,000 C.System maintenance and update $10,000 D.Annual employee engagement survey $2,000
TOTAL recurring costs: $**23,000**

Preliminary Budget Table (Detailed Items)

CATEGORY	**ITEM DESCRIPTION**	**Cost Type**	**Amount USD**
Software	**ERRS Development (Flask or React)**	**One-time**	**$30,000.00**
	Slack API integration & automation	**One-time**	**$4,000.00**
	Slack API hosting	**Recurring**	**$5,000.00**
Hardware	**(None required — hosted via Slack API)**	**N/A**	**$0.00**
Training	**Employee training & documentation**	**One-time**	**$4,000.00**
Payroll	**Developer time, testing, maintenance**	**Recurring**	**$10,000.00**
Marketing	**Launch event & internal promotions**	**One-time**	**$2,000.00**

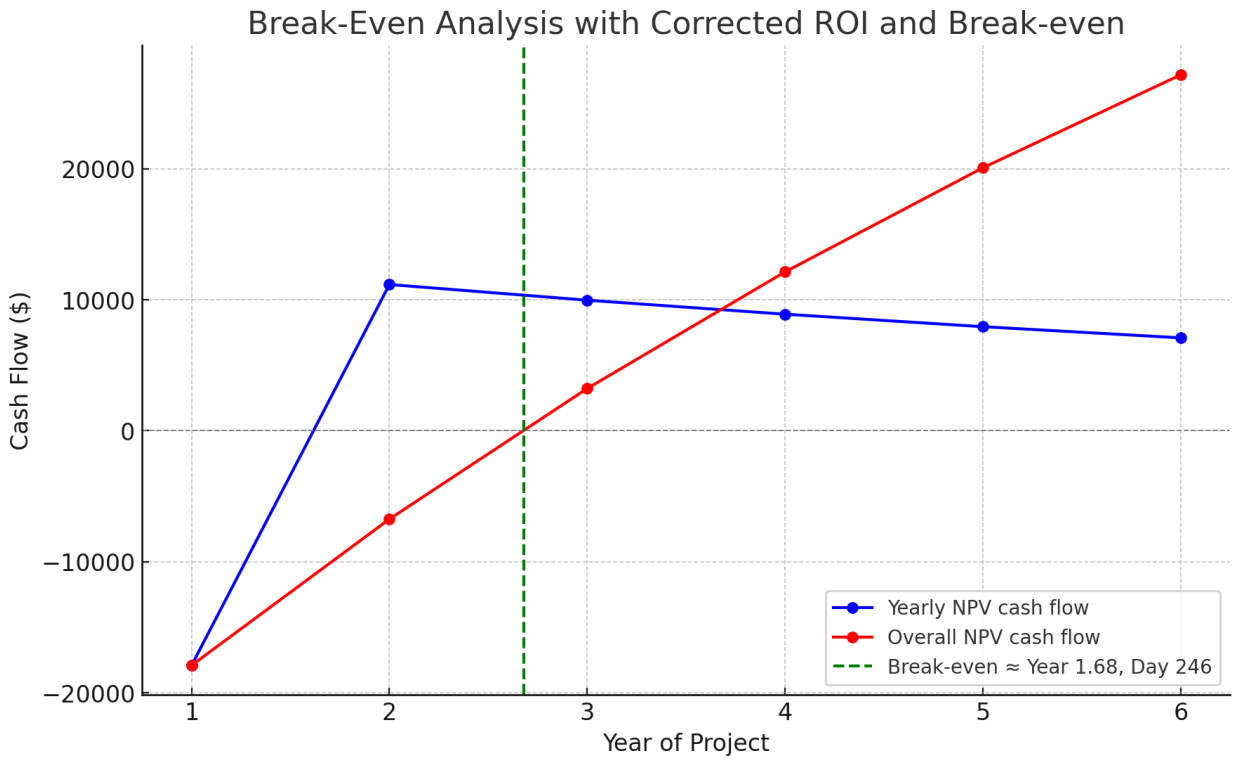
Recognition	**Rewards, badges, and employee incentives**	**Recurring**	**$6,000.00**
Evaluation	**Annual engagement survey**	**Recurring**	**$2,000.00**
TOTAL PROJECT COST (Year 1)	**Includes all one-time + recurring**		**$63,000.00**

Economic feasibility analysis

Year of Project	Net Economic Benefit	Discount Rate (12%)	PV of Benefits	NPV of all BENEFITS
0	0	1	0	0
1	$ 29,500.00	0.8929	$ 26,339.00	$ 26,339.00
2	$ 29,500.00	0.7972	$ 23,517.00	$ 49,857.00
3	$ 29,500.00	0.7118	$ 20,998.00	$ 70,854.00
4	$ 29,500.00	0.6355	$ 18,748.00	$ 89,602.00
5	$ 29,500.00	0.5674	$ 16,739.00	$ 106,341.00
TOTALS	**$ 106,341.00**	**-**	**$ 106,341.00**	**$ 106,341.00**

One-time COSTS	Recurring Costs	PV of Recurring Costs	NPV of All COST	Overall NPV
$ (17,900.00)	$ -	$ -	$ (17,900.00)	
	$ (17,000.00)	$ (15,179.00)	$ (33,079.00)	
	$ (17,000.00)	$ (13,552.00)	$ (46,631.00)	
	$ (17,000.00)	$ (12,100.00)	$ (58,731.00)	
	$ (17,000.00)	$ (10,804.00)	$ (69,535.00)	
	$ (17,000.00)	$ (9,646.00)	$ (79,181.00)	
$ (17,900.00)		**$ (79,181.00)**	**$ (79,181.00)**	**$ 27,160.00**

Break even analysis



Resource Plan

The successful implementation of our Slack-based engagement and recognition platform requires the strategic allocation of both human and technical resources. This resource plan outlines the key inputs across the development, deployment, and maintenance phases of the project, ensuring optimal alignment with project goals, timeline, and budget constraints.

1. Human Resources

- **Project Manager (PM)**: Oversees the project lifecycle, ensures timeline adherence, and coordinates cross-functional teams.

- **Software Developers**: A team of two full-stack developers will handle the platform build, API integration with Slack, and backend automation.
- **UX/UI Designer**: Responsible for designing an intuitive and engaging user interface that integrates seamlessly into the Slack environment.
- **HR & Training Specialists**: Develop training manuals, onboarding workflows, and facilitate initial employee orientation on the new system.
- **Marketing Lead**: Prepares launch materials and internal campaigns to increase adoption and usage rates post-deployment.
- **System Maintenance & IT Support**: Ensures smooth operation post-launch, handles updates, bug fixes, and supports ongoing technical needs.

2. Technical Resources

- **Software Tools**:
    - Slack Developer API for automation
    - Internal HR tools integration (if applicable)
    - Database systems for logging and analytics
- **Hardware**:
    - Cloud servers (for hosting APIs and data)
    - Office workstations for development and testing

Licenses & Subscriptions:

- Annual Slack API hosting
- Recognition & rewards platform subscription or plugin
- Survey tool for annual employee engagement evaluation

3. Budget-Allocated Resources

- **Recognition & Rewards Budget**: $6,000 annually to support tangible incentives aligned with employee milestones and achievements.
- **Training and Documentation**: $4,000 one-time investment for resource creation and delivery.
- **Marketing & Launch Event**: $2,000 for internal branding, promo materials, and launch activities.
- **System Maintenance**: $10,000 per year for updates, performance monitoring, and continuous improvement.

4. Timeline & Capacity Planning

The project will be rolled out over a 6-month period:

- **Month 1–2**: Planning, design, and system architecture
- **Month 3–4**: Development and internal testing
- **Month 5**: Employee training and stakeholder engagement
- **Month 6**: Full deployment and initial feedback loop

We anticipate a **break-even point within the third year**, and expect ROI to reach over **150%** within five years based on reduced onboarding costs, improved retention, and increased engagement.

Communication Plan

Communication Type	Audience	Purpose	Frequency	Where and Date
Project Kickoff Meeting	Project team and stakeholders	Introduce project scope, objectives , and time frames	One time	Virtual 2/16/25
Project Team	Software team , IT	Review the status of	Weekly	Virtual and on every

Meetings	team, and project managers	the project and see where the team got through the past week.		Monday at 10 am
Stakeholder Briefings	Management, HR , and IT	Making sure this aligns with business goals and see if any concerns come up	Bi-weekly	Virtual and on every other Friday at 9:30am
Technical Development Meetings	Software and IT	Discuss technical implementation , challenges , and integrations	Twice a week	Virtual and on Tuesdays and Thursdays at 2pm
User Feedback Sessions	Employees and HR	Receive input on system usability and improvements	Monthly	A survey given out and can be taken after the use of the test deployment and on 7/23/25
Final Project Review	All Stakeholders	Present final product and collect feedback and see when implementation will take place	One time	In person on deadline date

Communication Plan Narrative

Effective communication is the backbone of this project's success. Our communication plan is structured to keep all stakeholders informed, engaged, and aligned throughout the project lifecycle. It facilitates transparency, timely updates, feedback incorporation, and decision-making.

Kickoff Meeting: The project will commence with a virtual kickoff meeting on February 16, 2025, involving the project team and stakeholders. This meeting will define the project scope, objectives, timeline, and team responsibilities to ensure everyone starts from the same page.

Weekly Project Team Meetings: Held every Monday at 10 AM, these meetings will bring together the software, IT, and project management teams to evaluate weekly progress, address blockers, and set weekly goals.

Bi-Weekly Stakeholder Briefings: Every other Friday at 9:30 AM, a virtual session will be conducted with HR, IT, and management to review project alignment with business goals and capture feedback on strategy, implementation, and resource use.

Technical Development Meetings: These are focused, technical discussions involving software developers and IT staff. Held on Tuesdays and Thursdays at 2 PM, they cover challenges, system integration, and progress in building the platform.

Monthly User Feedback Sessions: Once a month, starting July 23, 2025, employees and HR will be invited to give feedback via survey tools after testing the platform. Their responses will guide refinements in usability and engagement features.

Final Project Review: Upon completion, an in-person final review will be held with all stakeholders. The team will present the final solution, demonstrate key outcomes, and discuss implementation plans.

Project Standards and Procedures Narrative

This project will adopt agile development principles combined with industry-standard software engineering practices to maintain quality, efficiency, and adaptability.

Development Standards:

- **Code reviews will be conducted using GitHub pull requests to ensure quality and consistency.**
- **Agile methodology will be followed, with two-week sprints and sprint retrospectives.**
- **All code must be documented using docstrings and follow PEP8 style guidelines.**

Documentation Procedures:

- **All design specifications, meeting notes, and user stories will be maintained on Confluence.**
- **Weekly progress will be logged in Jira and reviewed during team meetings.**
- **Testing Standards:**
- **Each component will undergo unit, integration, and user acceptance testing.**
- **Bug tracking will be conducted via Jira, and a severity-based response timeline will be followed.**
- **Change Management:**

- **Change requests must be submitted through a standardized change log form.**
- **Major changes will be reviewed and approved by the project manager and stakeholders.**
- **Deployment and Maintenance:**
- **All deployment steps will follow a CI/CD pipeline.**
- **Post-deployment, a maintenance window and support desk protocol will be established.**

Risk Identification and Assessment Narrative

Anticipating and mitigating potential risks is key to keeping this project on track. The following outlines the top identified risks and strategies for addressing them:

Risk	Impact	Likelihood	Mitigation Strategy
Slack API changes or limitations	**High**	**Medium**	**Regularly monitor Slack API updates; have fallback integration strategies.**
Resistance from employees during adoption	**Medium**	**High**	**Conduct early onboarding, training, and create clear benefit messaging.**
Technical bugs or delays	**High**	**Medium**	**Implement CI/CD pipeline and regular sprint reviews for early detection.**
Misalignment with stakeholder expectations	**High**	**Medium**	**Maintain frequent stakeholder briefings and feedback loops.**

Data privacy or security issues	**High**	**Low**	**Apply strong data encryption, secure user authentication, and regular audits.**
Budget overruns	**Medium**	**Low**	**Set a financial buffer and conduct regular budget reviews.**

User Requirements

This project will be developed and then deployed through slack. Every employee at TC Corp has access to Slack and uses it on a daily basis! To use the system employees must navigate to the recognition tab.

- The system will allow people to make a announcement to specific slack channels
- You can create your personal message with images and gifs and @ specific people
- The leaderboards will be automated to show who is the most recognized at TC Corp!

System Requirements

To create this system this is what is needed for the following hardware and software

- **Hardware**
  - Monitor
  - Keyboard
  - Mouse
- **Software**
  - Slack
  - Windows 10/11 or MacOS
  - Code IDE
    - VS code
  - **Packages to Java or Python**
- **Application Software**
  - Slack
  - Web Browser

Baseline Project plan

1. Overview

A. Project Overview: TC Corp's absence of a formal system for praising and rewarding staff members has a negative impact on engagement and morale.

S**B. Suggestion:** Create a digital recognition system that is integrated with Slack so that staff members can enjoyably and interactively recognize one another's contributions. Enhancing organizational culture, raising employee satisfaction, and promoting teamwork are the goals of this effort.

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2. Evaluation of the System

C. System description: To enable smooth use without the need for extra software downloads, the Employee Recognition & Reward System (ERRS) will be incorporated into Slack. To acknowledge employee contributions, the system will have an intuitive user interface, automated leaderboards, badges, and shoutouts. React (JavaScript) or Flask (Python) will be used for the development, guaranteeing scalability and security. Before the system is deployed, testing will be done inside a single department.

D. restrictions: Complying with HR standards, maintaining a rigorous development deadline and budget, and guaranteeing compatibility with Slack are the main restrictions. The system ought to operate as a smooth Slack workflow without interfering with ongoing procedures. The IT team's assistance for integration and maintenance, management's endorsement to encourage adoption, and active usage by staff and management are important presumptions.

E. Alternatives: The business could use third-party software that is already available for purchase, or we could experiment with manual recognition and company-wide recognition activities.

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3. Evaluation of Feasibility

F. Operational Feasibility: This viability is quite high because Slack is already widely used by employees, making adoption simple.

G. Political Feasibility: Because the system has the potential to boost engagement, management is likely to approve it. Since the project complies with HR regulations, there aren't any serious legal issues.

H. Technical Feasibility: With IT assistance for integration, the system is viable and can be constructed utilizing current technologies.

I. Tangible benefits: which add up to almost $79,000 a year—include decreased employee complaints, fewer onboarding and training expenses, more Slack participation, and higher staff retention. With recurring annual expenses of $77,000, the anticipated development cost is

$40,000.

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4. Problems with Management

J. Communication plans: Regular communication with stakeholders is one of the structured management techniques necessary for a project's successful completion. The scope, goals, and schedule will be presented at the project kickoff meeting. While biweekly stakeholder briefings will guarantee alignment with business goals, weekly team meetings will monitor progress. Twice-weekly technical development meetings will be used to discuss implementation issues, and monthly user feedback sessions will gather information for system enhancements. Assuring timely completion within financial restrictions, resolving technical integration issues, and maintaining stakeholder support are key management problems. Including requirements gathering, database design, system architecture, API integrations, programming, testing, and deployment, the project will adhere to a planned implementation schedule. After deployment, ongoing assessment and stakeholder input will be crucial for system improvement.

5. Project Alternatives

Option 1: Build a Custom ERRS System (Recommended)
Action: Develop an internal web app using Flask (Python) or React (JavaScript), integrated into Slack.

Pros: Fully tailored, high engagement, scalable, supports future upgrades.

Cons: Requires time and dev resources.

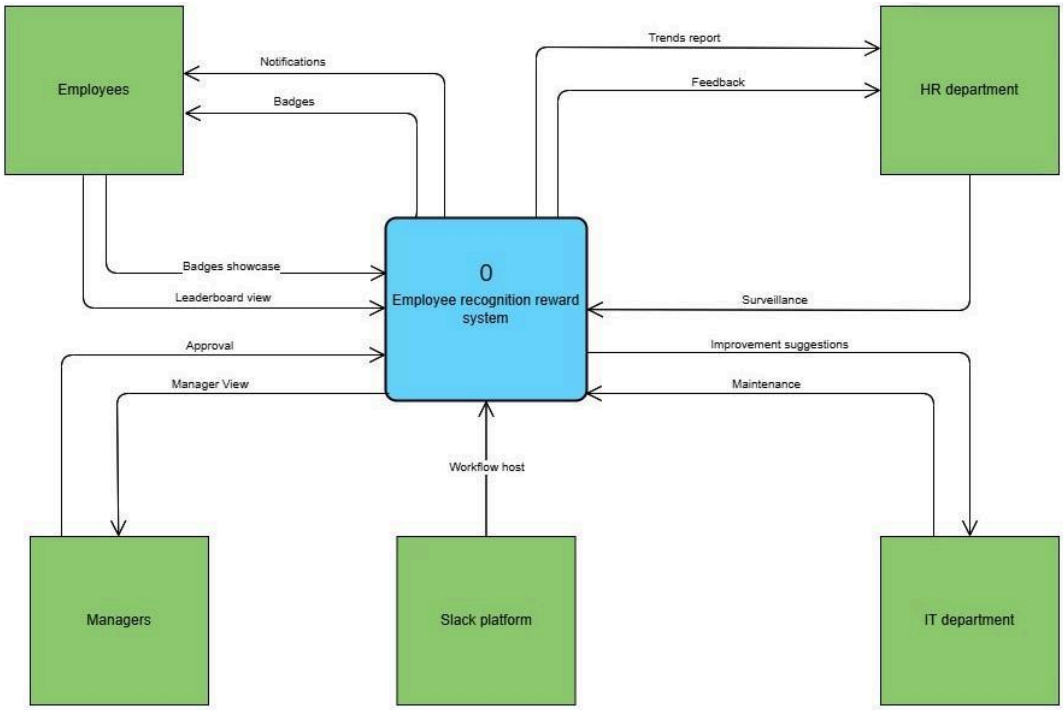
Option 2: Use a Third-Party Tool (e.g., Bonusly, Kudos)
Action: Subscribe to an existing employee recognition SaaS platform.

Pros: Quick setup, includes built-in features, reliable support.

Cons: Monthly costs, less customization, limited Slack integration control

1.0) Data Flow Diagrams

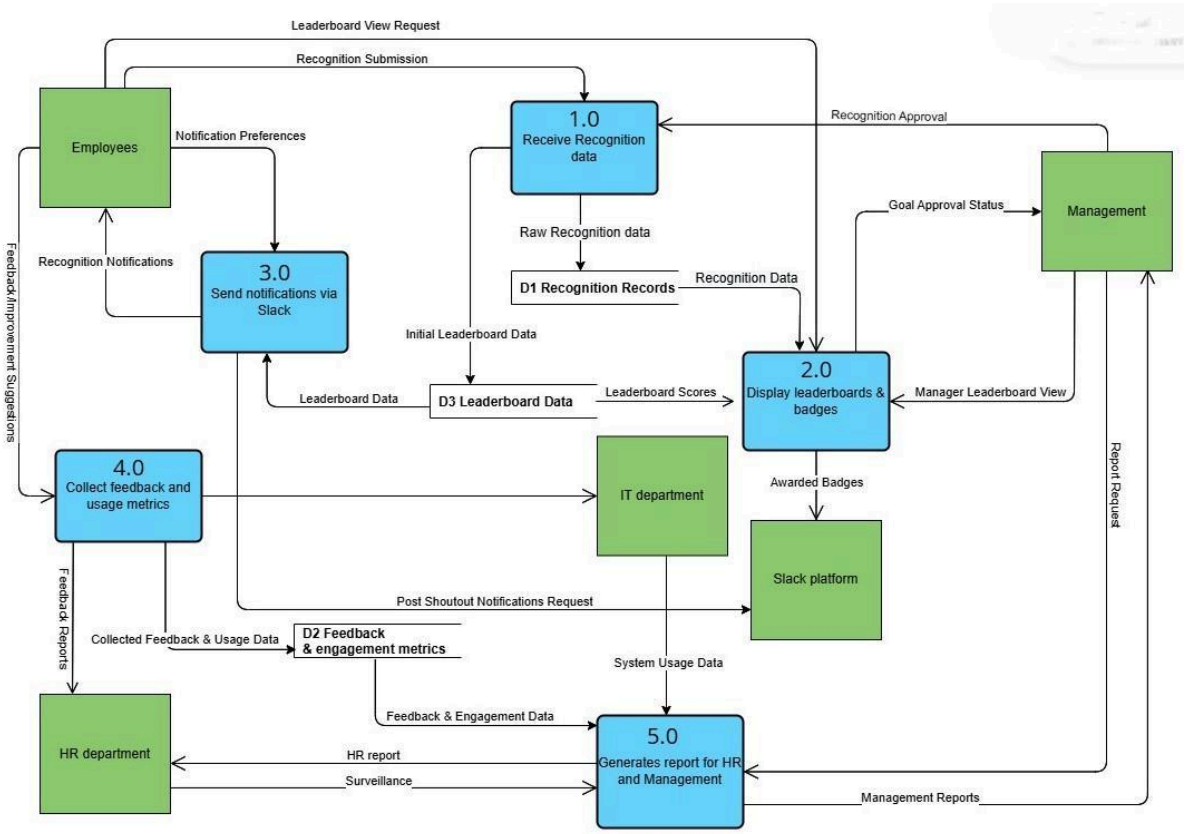
1.1) Context Diagram



The context diagram here shows our main system as process 0 the employee recognition reward system. There are 5 entities that surround it, Employees, Slack platform, IT department, Managers, and HR department. All these entities have some relationship with the main process 0.

Slack platform is used to host our entire workflow, the IT department does maintenance and gathers improvement suggestions from the process. HR monitors use of the process and collects feedback and trend reports and managers and employees have manager and employee views, Managers also have to approve of a task that an employee submits and the employee can also view the leaderboard and see their badges.

1.2) Level 0 diagram

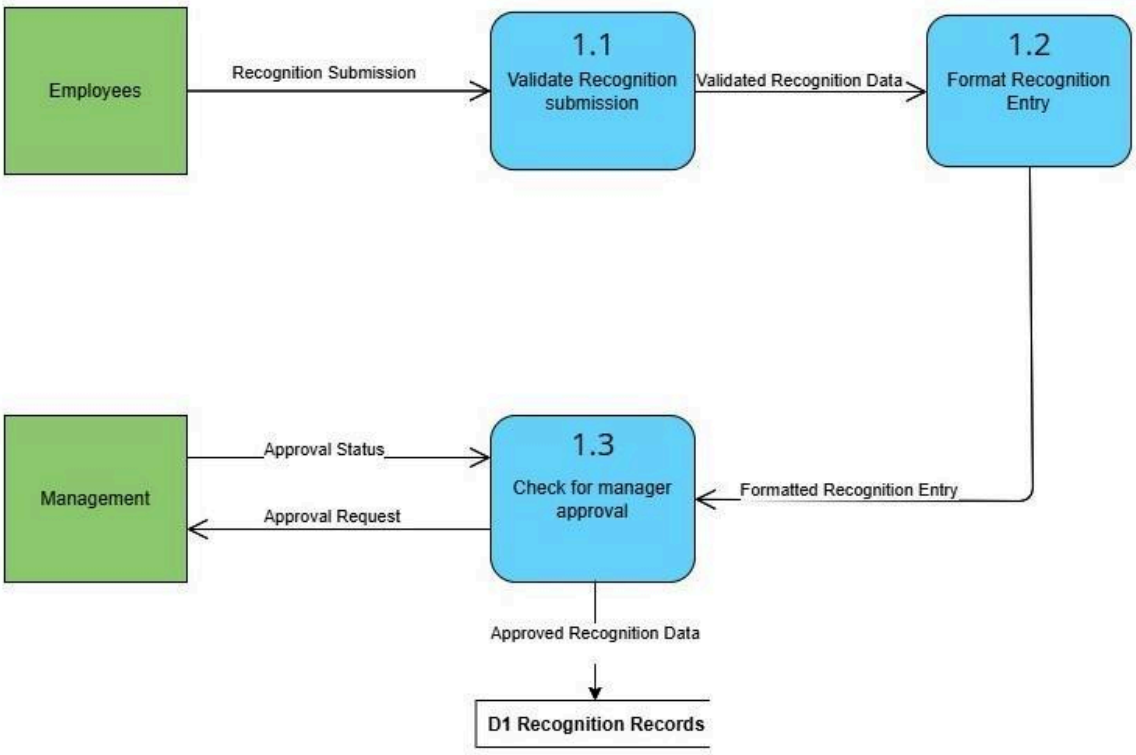


This level 0 diagram breaks down process 0 in the context diagram into 5 different processes and 3 data stores are added to the DFD. Starting with our new processes we have: receive recognition data, then display leaderboards and badges, send notifications via slack, collect feedback and usage metrics and generate reports for HR and management. The 3 data stores are called, recognition records, feedback & engagement metrics and leaderboard data.

The process begins with employees submitting recognition via subprocess 1.0, which validates, formats, and may route entries for management approval. Recognition Records (D1) contain all approved entries. Process 2 collects recognition data from the data store and formats it and puts it into the leaderboards. Process 3.0 uses Slack to give shoutouts and badge alerts. Subprocess 4.0 collects, organizes, and records employee feedback to Feedback & Engagement Metrics (D2) for future use. Finally, subprocess 5.0 uses data from all stores (D1, D2, and D3) to provide detailed engagement and performance reports for HR and management.

1.3) Level 1 diagrams

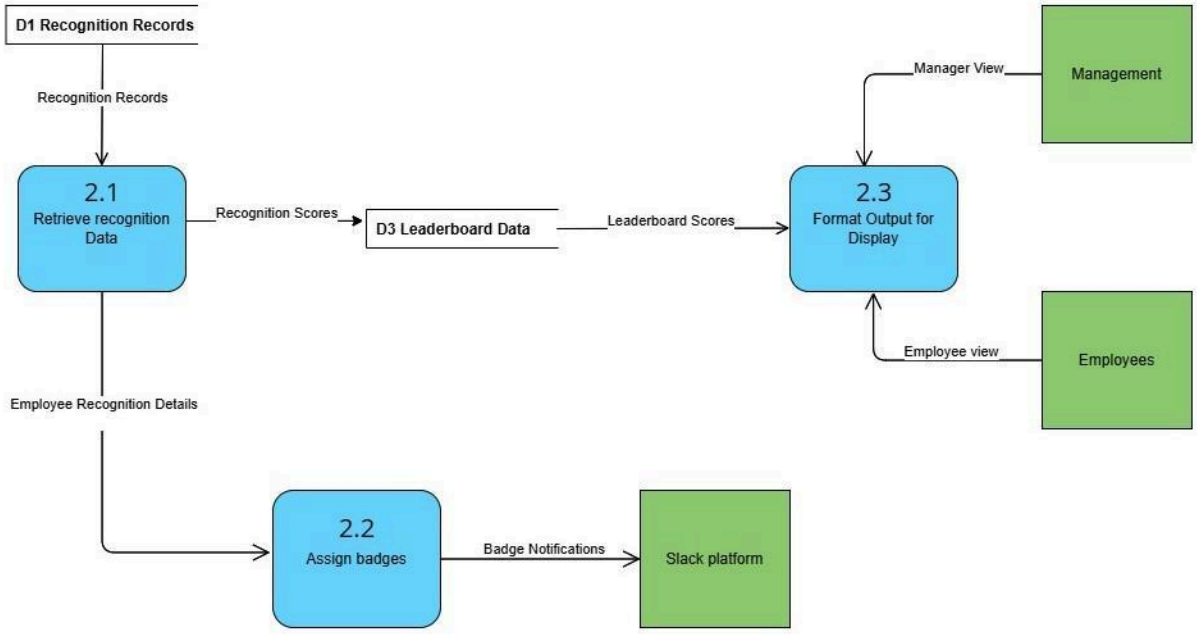
Process 1



This Level 1 Data Flow Diagram (DFD) focuses on Process 1.0 Receive Recognition Data in the Employee Recognition Reward System (ERRS), breaking it down into three distinct subprocesses which are validation, formatting, and management approval. The process begins when employees deliver acknowledgement details to the system. The data first enters subprocess 1.1, where the system checks the recognition submission to ensure it meets the required standards. If the information is correct, it is sent to subprocess 1.2, where it is suitably organized to meet system requirements and standards.

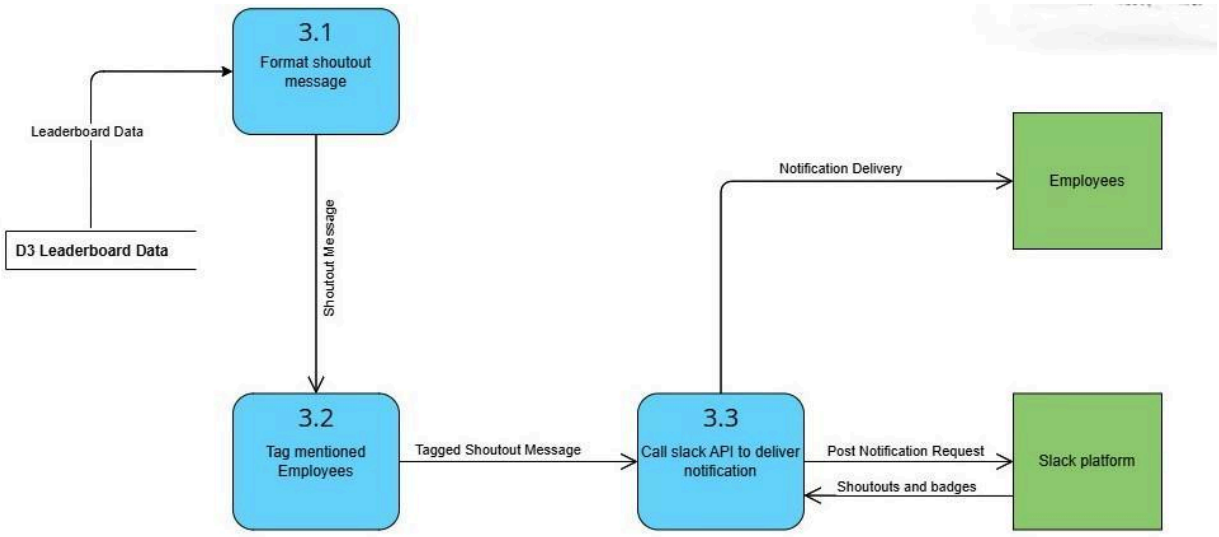
The structured data then advances to subprocess 1.3, which decides whether manager approval is necessary. If authorization is required, a request is sent to the management entity. Management then responds with either an approval or rejection decision. Once the formatted recognition entry is confirmed and authorized (if necessary), it is saved in the data repository referred to as D1, known as “Recognition Records,” where all recognition entries are maintained indefinitely. This illustration distinctly depicts the flow of recognition data from staff, through validation and approval steps, into permanent system storage, with managers participating in the control and approval loop

Process 2



The above diagram shows our process 2 and all it's subprocesses. Process 2's main goal is to get data of the employee's recognition tasks and format it so that it can be displayed on a leaderboard to compare scores. It starts with subprocess 2.1 retrieving recognition data from the recognition records then it sends that data to subprocess 2.2 which calculates the scores and sends it to the leaderboards and to subprocess 2.3 which then allows you to get badges if you reach the leaderboards on your slack profile. While the data that is sent to the leaderboards then gets sent to subprocess 2.4, it then processes that and gives it to both employees and managers.

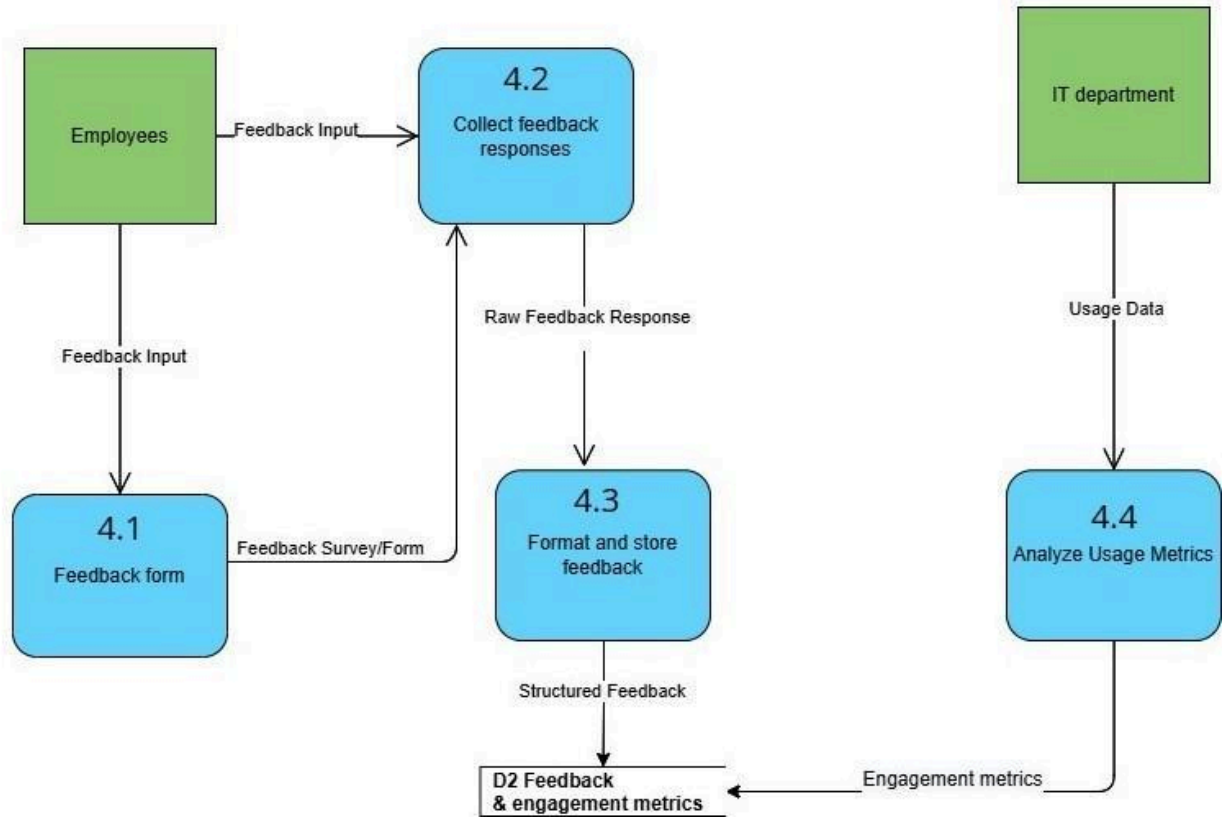
Process 3



The above diagram displays the internal framework of Process 3.0 – Send Notifications through Slack in the Employee Recognition and Reward System. The process initiates with subprocess 3.1, "Format Shoutout Message," which retrieves employee recognition data from the Leaderboard Data store (D3). With this information, the system generates a shoutout or badge notification.

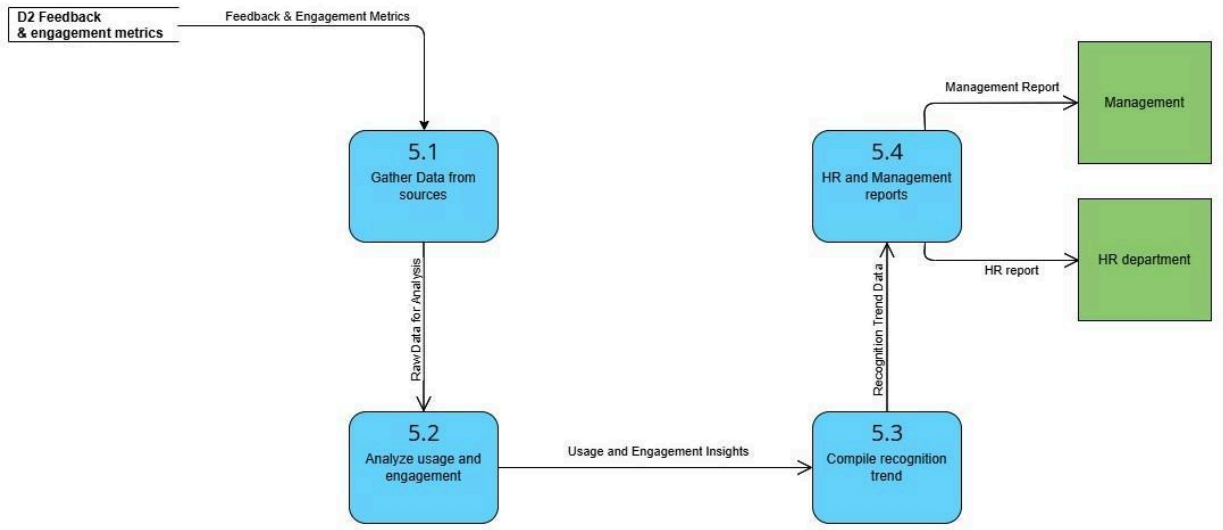
The message is subsequently forwarded to subprocess 3.2, "Tag Mentioned Employees," in which the system recognizes and tags the identified individuals, creating the complete notification message. The finalized message is subsequently forwarded to subprocess 3.3, "Call Slack API to Deliver Notification," where it engages with the Slack platform to deliver shoutouts and badge notifications straight to the respective employees. The Slack platform provides these recognitions, making sure that employees are credited within the communication tool they utilize each day

Process 4



So this part of the DFD is about how we gather feedback and usage data — it's Process 4.0. It starts with sending out surveys or feedback forms to employees (that's step 4.1). Once people fill them out, we collect the responses in 4.2. Then in 4.3, all that data gets cleaned up and stored in a more usable format

Process 5



Here we are shown process 5 which generates the feedback reports for management and the HR department. It begins with subprocess 5.1 which collects feedback data in the data store D2 feedback & engagement metrics, it takes that data and formats the data so subprocess 5.2 can easily analyze it and gather information on usage and engagement. These data insights are then delivered to subprocess 5.3 which compiles a recognition trend and sends the summarized data to subprocess 5.4 which is the last step before a report is formatted and sent to management and the HR department.

1.4 GAP analysis

Naming standard:
The naming standard used for these data flow diagrams (with some exceptions) was structured by having a number format for the processes and subprocesses, while for the relationships they followed the numbers with either a noun or adjective describing them and then another noun to add on.

For Processes they took the shape of a square with round edges that are colored light blue. These represent the procedures being done in the background for our system to be fully functional.

The process names were formatted as such

- The number of the process “n.n”
- An action verb followed by a noun
- Sometimes two nouns were present

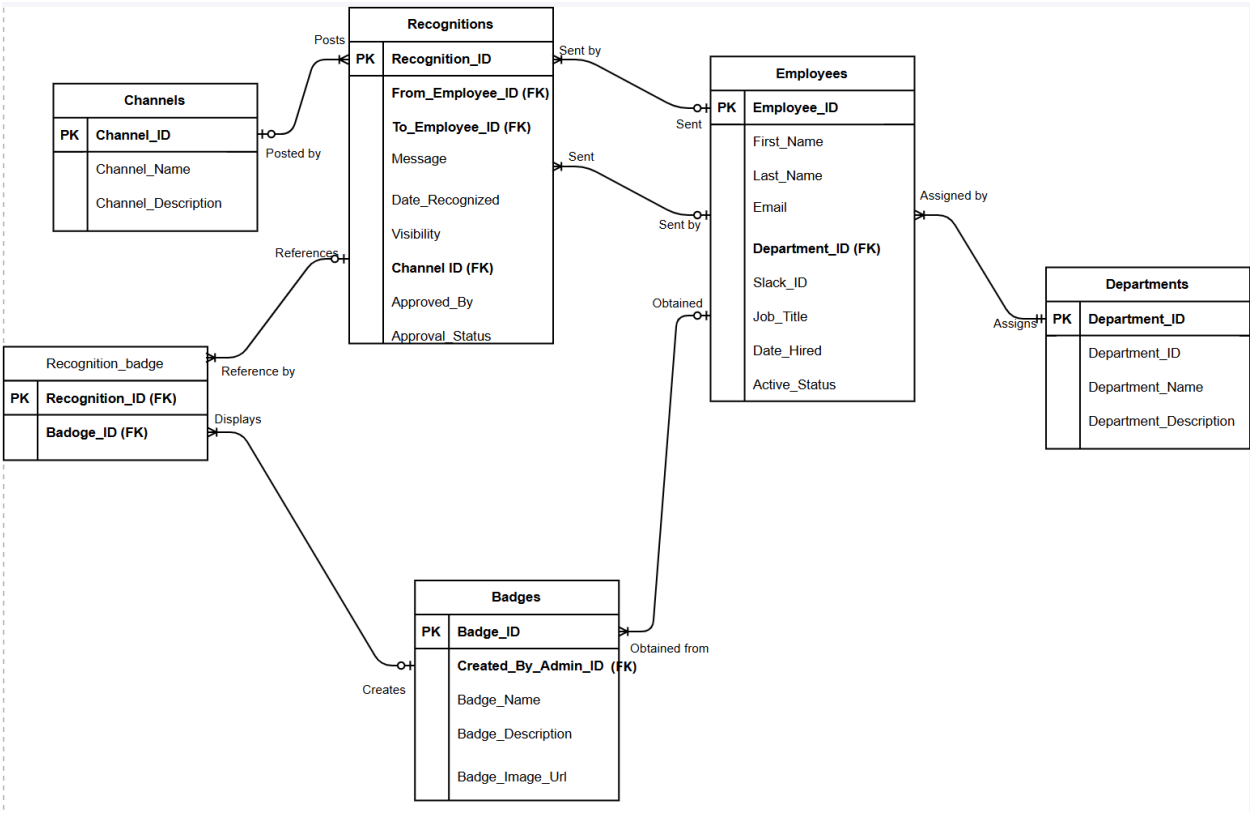
The data stores names were determined by

- The letter “D” representing data store
- A number designating which data store it was
- Followed by a noun
- Followed by type of Data

During our gap analysis we also noticed some discrepancies with our naming so we had to go back and change some names, along with that we also ran into some problems with our processes and relationships either misaligning or overlapping where it didn’t make sense. Our solution was to go back and go through our system step by step to ensure that everything was consistent

What we added: Submitted tasks by regular employees for recognition must be approved first by a manager, the system will show approval status along with the employee ID of the manager

ER Diagram



Employee Primary Key: Employee_ID

Attributes: First_Name, Last_Name, Email, Department_ID, Slack_ID, Job_Title, Date_Hired, Active_Status

Recognition Primary Key: Recognition_ID Foreign Keys:

- From_Employee_ID → Employee(Employee_ID)
- To_Employee_ID → Employee(Employee_ID)
- Channel_ID → Channel(Channel_ID)

Attributes: Message, Date_Recognized, Visibility, Is_Anonymous, Approved_By, Approval_Status

Badge Primary Key: Badge_ID

Attributes: Badge_Name, Badge_Description, Badge_Image_URL, Created_By_Admin_ID → Employee(Employee_ID)

Channel Primary Key: Channel_ID

Attributes: Channel_Name, Channel_Description

Department Primary Key: Department_ID

Attributes: Department_Name, Department_Description

Recognition_Badge (Join Table) Composite Primary Key: Recognition_ID, Badge_ID Foreign Keys:

- Recognition_ID → Recognition(Recognition_ID)
- Badge_ID → Badge(Badge_ID)

Cardinality:

- One Employee can send many Recognitions (1:M)
- One Employee can receive many Recognitions (1:M)
- One Recognition can include many Badges; one Badge can be included in many Recognitions (M:M)
- One Employee (admin) can create many Badges (1:M)
- One Channel can have many Recognitions (1:M)
- One Department can have many Employees (1:M)
- Each Recognition (Recognition_ID) forms a ternary relationship involving one sending Employee (From_Employee_ID) and one receiving Employee (To_Employee_ID), uniquely linking a recognition instance to exactly one sender and one receiver. (M:1:1)

2.0 Binary and Ternary Relationship Table

Relationship Name	Entities Involved	Type	Cardinality	Connection to ER Diagram
Employee ↔ Recognition (Sender)	Employee → Recognition (From_Employee_ID)	Binary	1 ↔ M	One `Employee` (identified by `Employee_ID`) can send many `Recognitions`; each `Recognition` is sent by exactly one `Employee`.
Employee ↔ Recognition (Receiver)	Employee → Recognition (To_Employee_ID)	Binary	1 ↔ M	One `Employee` (identified by `Employee_ID`) can receive many `Recognitions`; each `Recognition` is received by exactly one `Employee`.
Badge ↔ Recognition	Recognition ↔ Badge (via Recognition_Badge)	Binary	M ↔ M (via Join Table)	One `Recognition` (identified by `Recognition_ID`) can include multiple `Badges` (identified by `Badge_ID`); each `Badge` can be associated with multiple `Recognitions`. Implemented through the join table `Recognition_Badge`.
Employee ↔ Badge (Creator)	Employee → Badge (Created_By_Admin_ID)	Binary	1 ↔ M	One admin `Employee` (identified by `Employee_ID`) can create many `Badges`; each `Badge` is created by exactly one admin `Employee`.
Channel ↔ Recognition	Channel → Recognition (Channel_ID)	Binary	1 ↔ M	One `Channel` (identified by `Channel_ID`) can have many `Recognitions`; each `Recognition` occurs within exactly one `Channel`.
Department ↔ Employee	Department → Employee (Department_ID)	Binary	1 ↔ M	One `Department` (identified by `Department_ID`) can include many `Employees`; each `Employee` belongs to exactly one `Department`.

Recognition ↔ Employee (Sender) ↔ Employee (Receiver)	Recognition, Employee (Sender), Employee (Receiver)	Ternary	M ↔ 1 ↔ 1	A `Recognition` (identified by `Recognition_ID`) explicitly associates one sending `Employee` (`From_Employee_ID`) and one receiving `Employee` (`To_Employee_ID`) uniquely for each recognition instance.

2.3 Entity Relationships

The binary relationships between entities are as follows:

Employee and Recognition (Sender): One employee can send many recognitions; each recognition is sent by exactly one employee.

Employee and Recognition (Receiver): One employee can receive many recognitions; each recognition is received by exactly one employee.

Badge and Recognition: One recognition can include multiple badges; one badge can appear in multiple recognitions. This many-to-many relationship is facilitated through the join table Recognition_Badge.

Employee and Badge (Creator): One employee (admin) can create many badges; each badge is created by exactly one employee.

Channel and Recognition: One channel can have many recognitions; each recognition belongs to exactly one channel.

Department and Employee: One department can have many employees; each employee belongs to exactly one department.

The ternary relationships between entities are as follows:

Recognition, Employee (Sender), and Employee (Receiver): Recognition associates a sender and receiver employee, uniquely identifying both sender and receiver for each recognition instance.

3.0 Data Dictionary

Data Dictionary				
Entity	**Attribute Name**	**Data Type**	**Data Length**	**Data Domain**
Employee	Employee_ID	Alphanumerical	10	EMP0000001 - EMP9999999
	First_Name	Alphanumerical	30	A-Z
	Last_Name	Alphanumerical	30	A-Z
	Email	Alphanumerical	50	user@tccorp.com
	Department_ID	Numerical	5	101, 102, etc.
	Slack_ID	Alphanumerical	20	
	Job_Title	Alphanumerical	50	HR , Analyst, Engineer, Manager, HR
	Date_Hired	DATE	8	DD/MM/YYYY
	Active_Status	BOOLEAN	1	1 = Active 0 = Inactive
Recognition	Recognition_ID	Numerical	10	Auto-incremented
	From_Employee_ID	Alphanumerical	10	EMPxxxx
	To_Employee_ID	Alphanumerical	10	EMPxxxx
	Message	Alphanumerical	-	Free Alphanumerical
	Channel_ID	Alphanumerical	15	slack_channel_001
	Date_Recognized	DATE	8	MM/DD/YYYY
	Visibility	Alphanumerical	10	Public or Private
	Is_Anonymous	BOOLEAN(Numerical)	1	0 or 1
	Approval_Status	BOOLEAN	1	0 or 1

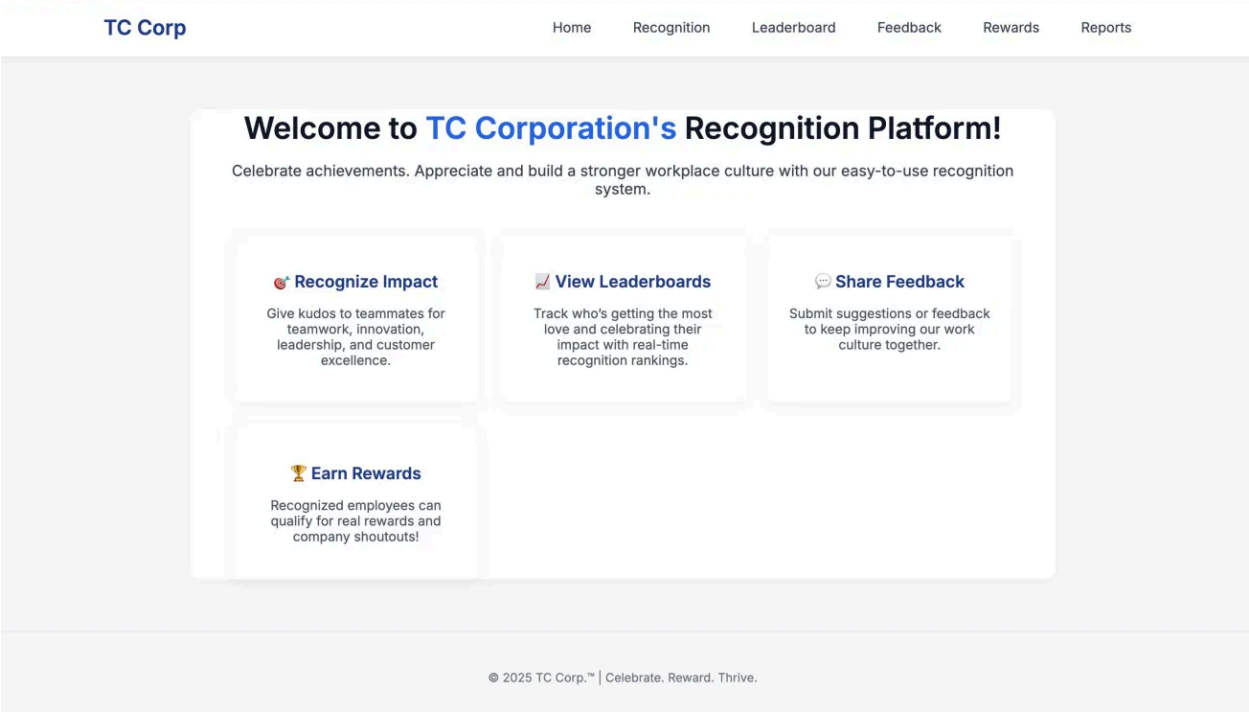
	Approved_By	Alphanumerical	30	EMP0000001 - EMP9999999
Badge	Badge_ID	Numerical	5	Auto-Incremented
	Badge_Name	Alphanumerical	30	E.g , MVP , Rockstar, Meme
	Badge_Description	Alphanumerical	-	Free Alphanumerical
	Badge_Image_URL	Alphanumerical	100	https://…
	Created_By_Admin_ID	Alphanumerical	10	ADMxxxxx
Recognition_Badge	Recognition_ID	Numerical	10	Must match a valid Recognition_ID
	Badge_ID	Numerical	10	Must match a valid Badge_ID
Channels	Channel_ID	Numerical	10	Slack channel id
	Channel_Name	alphanumerical	50	Slack channel name
	Channel_Description	alphanumerical	50	What channel it is for

Milestone 3

1.0 Form and Report Design

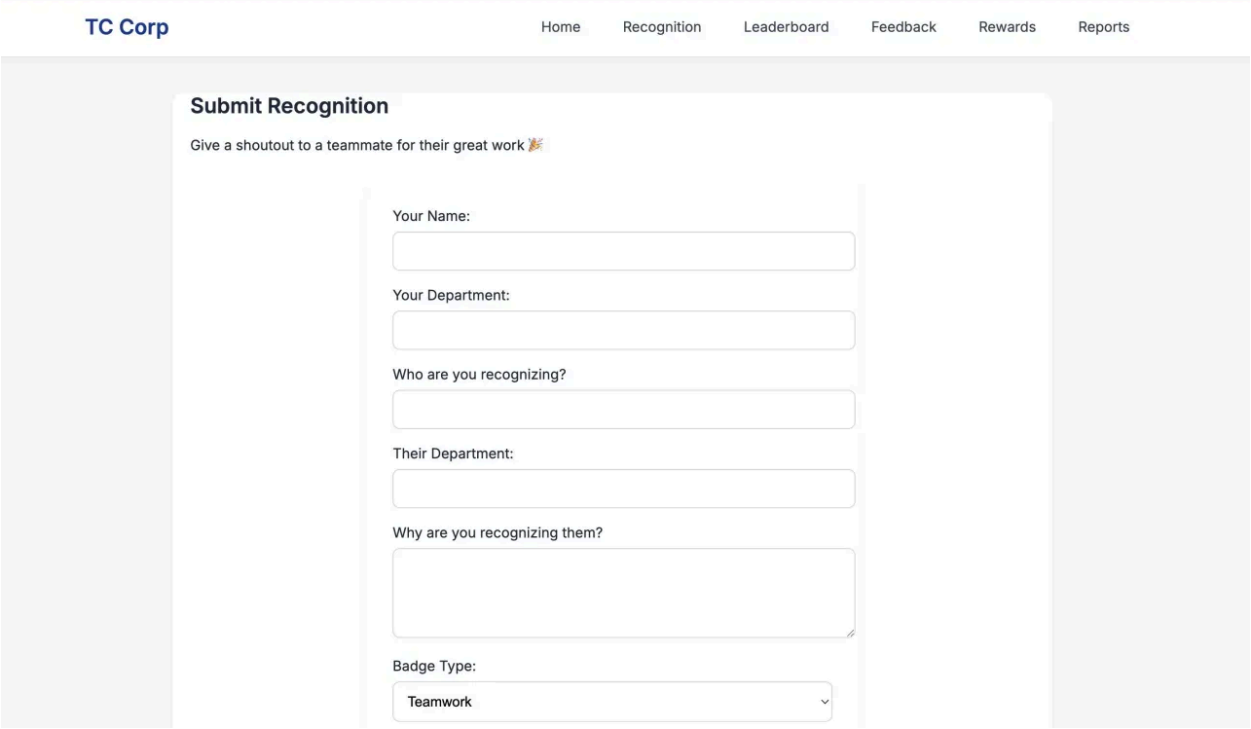
1.1 Specifications – Deliverables and outcomes

Sample Designs:



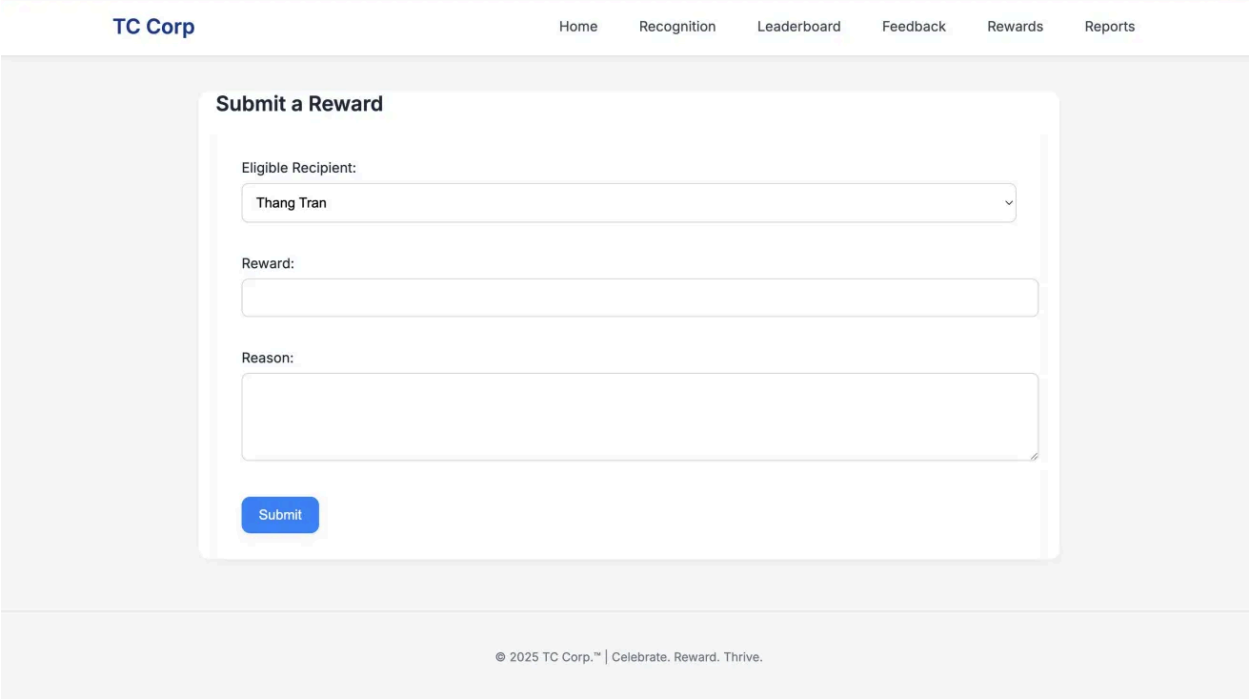
Form	**Homepage**
User	**Employees of TC corp**
Task	**Introduce what the recognition platform is**
System	**Google chrome**
Environment	**TC corp**

Testing and usability assessment
Consistency (1 = consistent, 5 = inconsistent): 1
Sufficiency (1 = sufficient, 5 = insufficient): 1
Accuracy (1 = accurate, 5 = inaccurate): 1
Usability (1 = accurate, 5 = inaccurate): 2



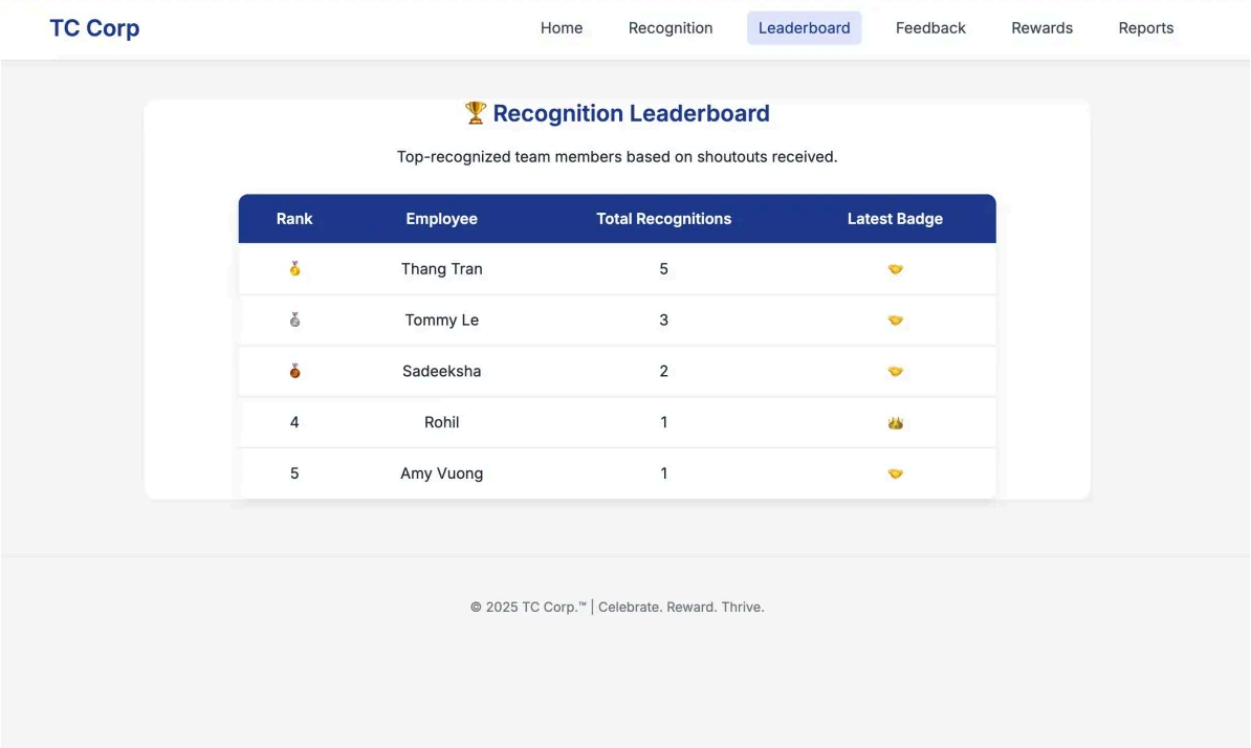
Form	**Submit recognition**
User	**Employees of TC corp**
Task	**Submit recognition into slack**
System	**Google chrome**
Environment	**TC corp**

Testing and usability assessment
Consistency (1 = consistent, 5 = inconsistent): 1
Sufficiency (1 = sufficient, 5 = insufficient): 2
Accuracy (1 = accurate, 5 = inaccurate): 2
Usability (1 = accurate, 5 = inaccurate): 1



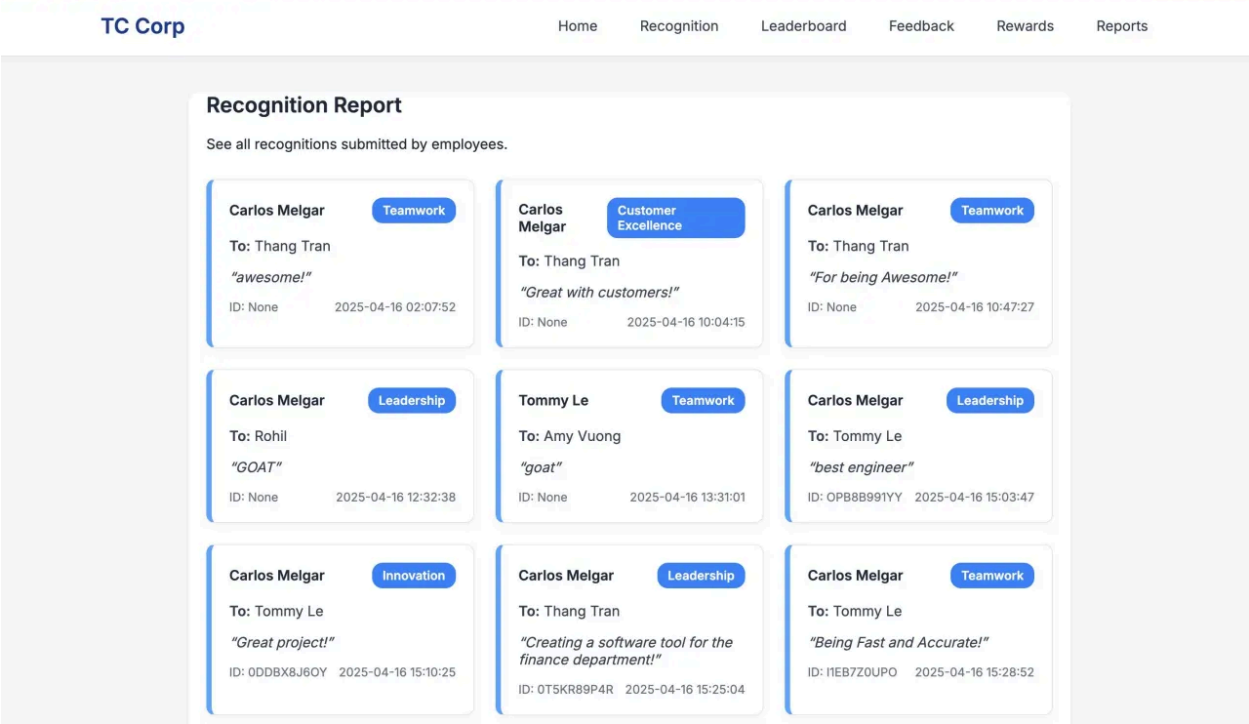
Form	**Submit rewards**
User	**Managers**
Task	**Submit reward for employees**
System	**Google chrome**
Environment	**TC corp**

Testing and usability assessment
Consistency (1 = consistent, 5 = inconsistent): 2
Sufficiency (1 = sufficient, 5 = insufficient): 2
Accuracy (1 = accurate, 5 = inaccurate): 1
Usability (1 = accurate, 5 = inaccurate): 1



Form	**Recognition leaderboard**
User	**Employees of TC corp**
Task	**Show leaderboards between employees**
System	**Google chrome**
Environment	**TC corp**

Testing and usability assessment
Consistency (1 = consistent, 5 = inconsistent): 1
Sufficiency (1 = sufficient, 5 = insufficient): 2
Accuracy (1 = accurate, 5 = inaccurate): 2
Usability (1 = accurate, 5 = inaccurate): 1

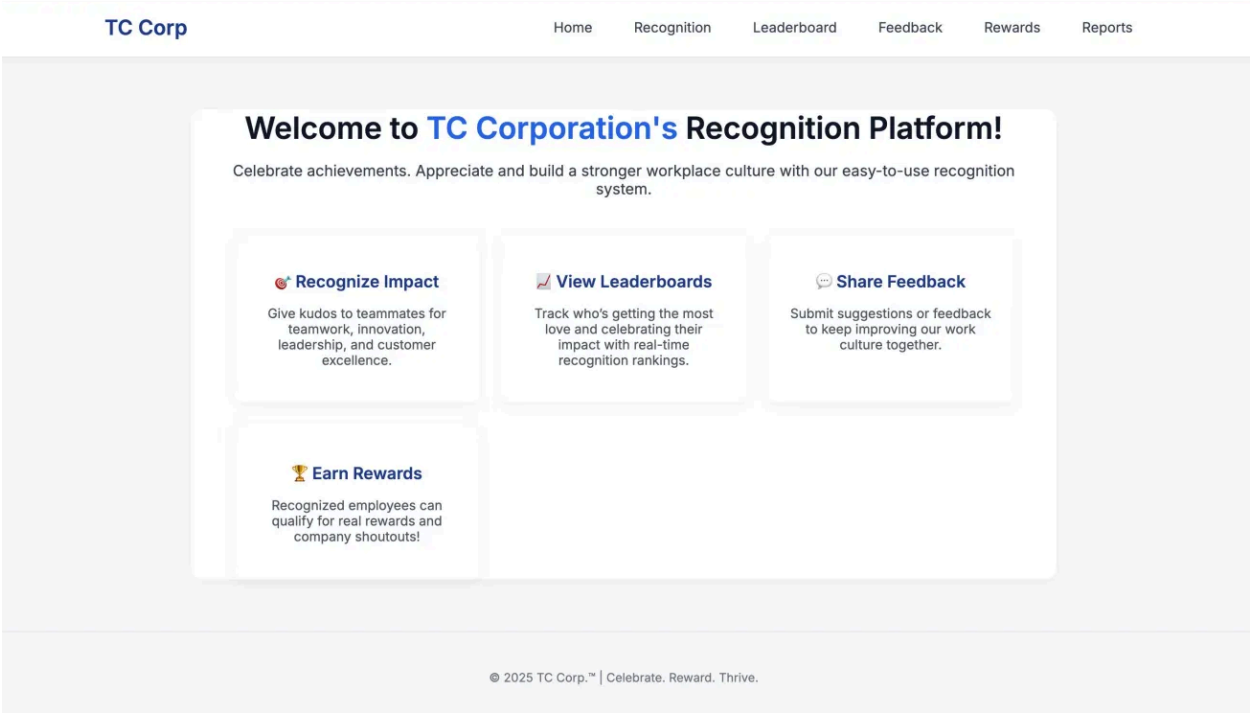


Form	**Recognition leaderboard**
User	**Employees of TC corp**
Task	**Show leaderboards between employees**
System	**Google chrome**
Environment	**TC corp**

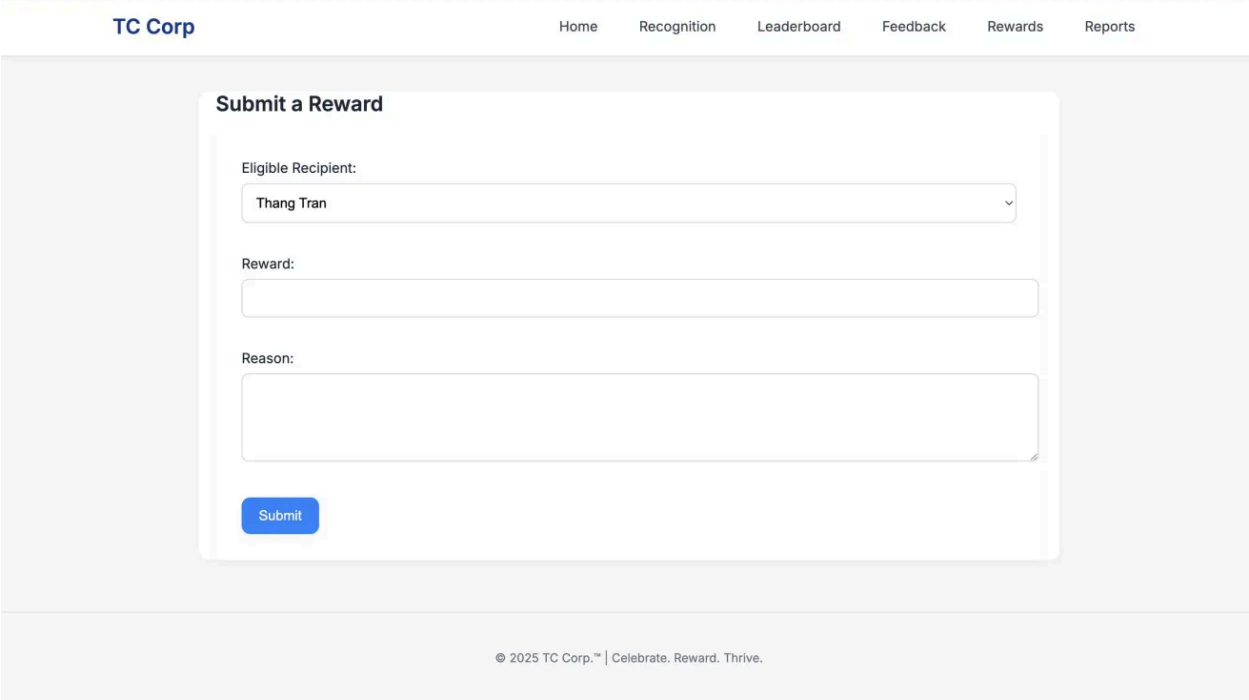
Testing and usability assessment
Consistency (1 = consistent, 5 = inconsistent): 1
Sufficiency (1 = sufficient, 5 = insufficient): 2
Accuracy (1 = accurate, 5 = inaccurate): 2
Usability (1 = accurate, 5 = inaccurate): 1

2.0 Interface and dialogue design

Narrative overview
Interface/Dialogue: Main menu
User characteristics: Employee with access to laptop and slack
Task characteristics: Allows employees to access the ERRS main page where all ERRS functions can be accessed
System characteristics: Must have internet connection
Environmental characteristics: Company devices with internet connection

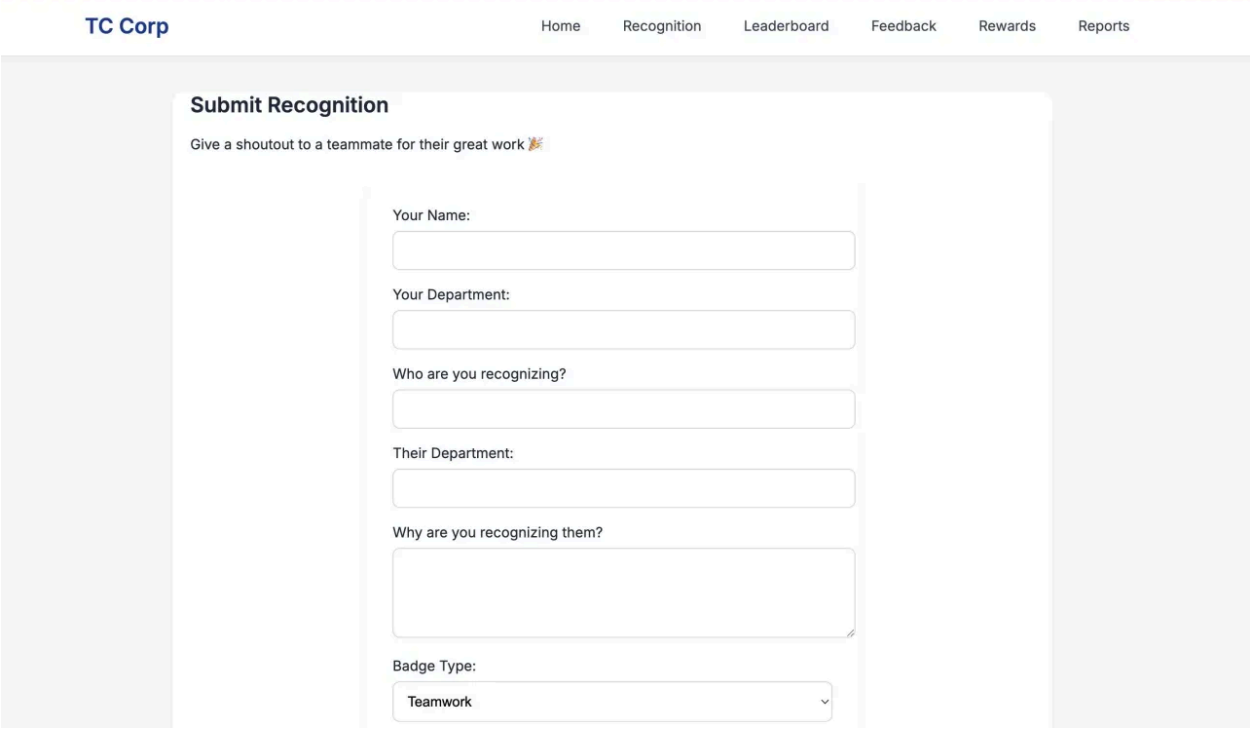


Testing and usability assessment
Testing objective: To see if each section in the main menu can be accessed
Testing procedure: Clicked on every section of the main menu
Testing result: 0 errors



Narrative overview
Interface/Dialogue: Submit a Reward
User characteristics: Employee with access to laptop and slack
Task characteristics: Allows managers to give an employee a reward with reasoning as to why
System characteristics: Must have internet connection
Environmental characteristics: Company devices with internet connection

Testing and usability assessment
Testing objective: To see if rewards were assigned correctly
Testing procedure: Gave a single reward to an employee
Testing result: 0 errors



Narrative overview
Interface/Dialogue: Submit a Reward
User characteristics: Employee with access to laptop and slack
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Testing and usability assessment
Testing objective: To see if rewards were assigned correctly
Testing procedure: Gave a single reward to an employee
Testing result: 0 errors