Team X-Combined Project

IT Ticket Dashboard

Abstract

A Web-based dashboard to manage

IT tickets at a company

Noah Wardega, Naail Sajjad

Project Part 1: Topic and Client Selection and System Concept Statement

IT Ticket Dashboard for a Small Company

System Concept Statement:

This IT ticketing dashboard empowers the IT staff of a company to efficiently handle and resolve tickets while addressing vulnerabilities on the company network. Users can seamlessly accomplish tasks by clicking on various dashboard tiles. These tiles encompass detected vulnerabilities, IT tickets (service/problem/incident), threat research, security ratings, and graphs/charts to represent the data. The dashboard is useful for our clients to proactively solve their users' IT problems and mitigate security risks on the network. Our client is Jakob Wardega who is a software engineer who works for Siemens.

Project Part 2: Contextual inquiry and contextual analysis

Part A.) How our team prepared for interviewing:

Our team prepared for interviews by researching the interviews company and roles. We also did research on the standard IT ticket dashboards used and what the current technology is like for that. For the interviews we prepared templates to take good research notes. We got our questions from the provided question list for the assignment to use as reference but also asked other questions more specific to the individuals.

Part B.) **List of interviewees:**

- Noah's interviews
    - Jakob W.-Software Engineer-Siemens-Big fixes and software maintenance
    - Cage W.-IT software developer-Student-embedded software
    - Kevin H.-IT Support-Co-op-Resolve IT tickets
- Naail's Interviews:

- Jay K. CSOC, Manage security Alerts
- Irfan S. IT Compliance, Ensure adherence to policies
- Wasif S. IT Analyst, Resolve company tickets

Part C.) Initial Questions

- What do you do for a living?
- What is a typical workday like?
- Do you use ticketing systems currently or have you in the past?
- Describe your experience with IT ticket systems?
- What did you like most about the dashboard?
- What did you like least?
- What features would you like to see in a new dashboard?

Part D.) Summaries of how the interviews went:

- Noah: I did one interview in person and two virtually. They all went very well and the people I interviewed seem excited to share their experiences with IT ticket systems. They all had varied experiences, and I was able to gain knowledge on a couple of different aspects. Some have experience being the user requesting help through tickets and some have experience resolving tickets. So, I was able to get data on both sides of using this type of dashboard.
- Naail: The meeting with my contacts went very well. I met with all three of my contacts virtually via Microsoft Teams. I was able to learn more about the roles they play in the company and their experience in IT. I learned from one of my contacts that a ticketing system is very useful to see the tasks at hand and keep

track of them. I also learned that having a dashboard to see alerts and tickets is very nice. It keeps tracks of the users who completed the tickets, who resolved the issue, at what time, and notes on how. The overall consensus I got was that it is very critical to have a robust dashboard to stay on top of the workload and maintain a strong security posture.

Part E.) How we collected data and what kinds:

- Through interview
- Record observations through notes
- Collected behavioral data and artifact data (tools used)

Part I.) Our process of building the WAAD and methods:

We used our interview notes to address problems, good features, and improvements. Using the data collected and work activity notes from interviews we were able to list subcategories that go into specifics for each of our main categories in our WAAD.

Problems

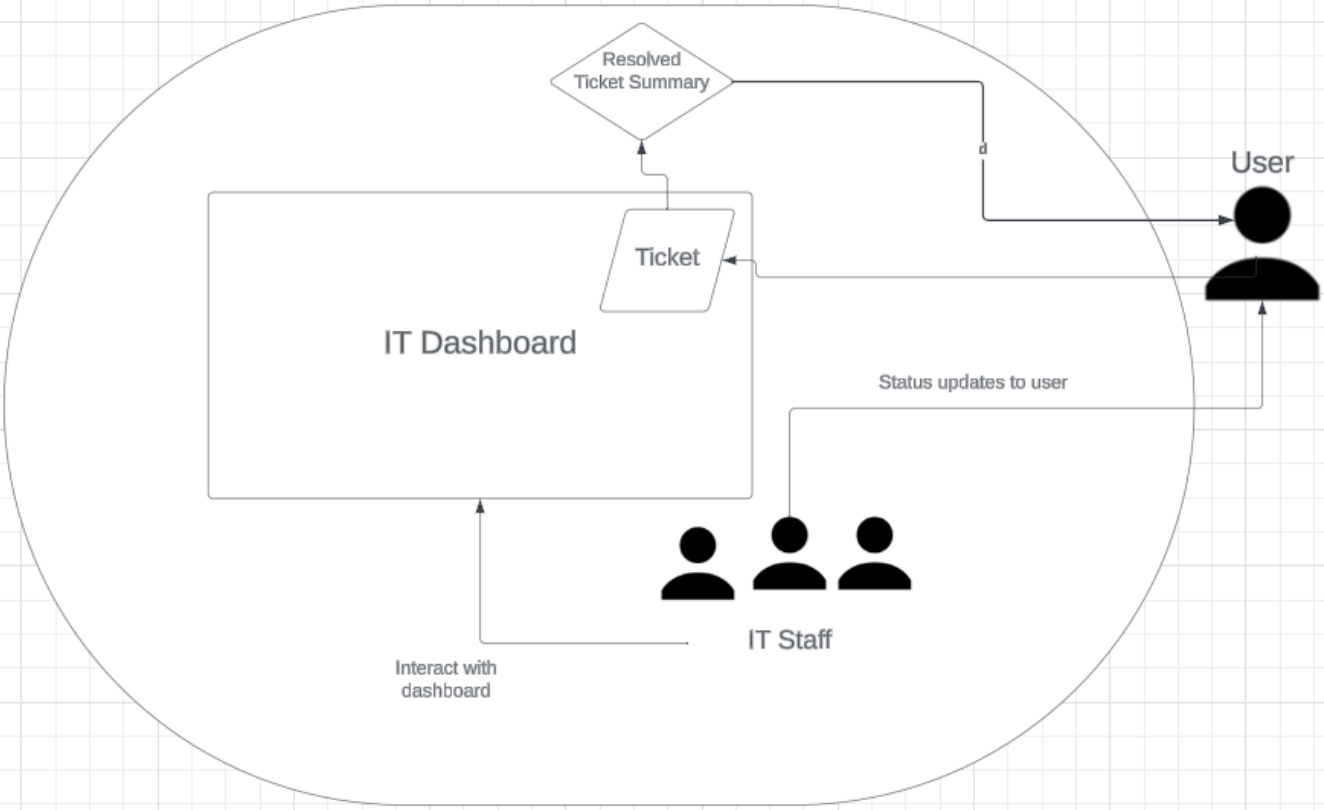
- Need more features to request specfic help
- There should be an undo button for errors
- Status only showing open, inprogress, and closed with no estimated completion time or further updates
- Takes too long for tickets to be resolved

Good Dashboard Features

- User-friendly
- Automated emails that send status updates
- Keeps group orginization
- Great visual to see work done or needed to be done
- Interface communication between user and IT staff

Desired Improvments

- simplification to complete tasks
- Summary of problem and how was solved provided to user once resolved
- More status updates


Resolved
Ticket Summary
User
Ticket
IT Dashboard
Status updates to user
IT Staff
Interact with
dashboard

Project Part 3: Requirements and Modeling

Section 1

For our project, we made decisions to tailor our scope by discussing our goals and objectives for the dashboard. We also thought about how a user must interact with the dashboard in order for it to be efficient. By doing this, we can make a robust dashboard that is user-friendly.

Models:

- Work Roles- Naail
- Workflow Model- Noah
- Hierarchical Task Inventory- Naail
- Step-by-Step Task Interaction Model- Noah
- The User Classes- Naail
- Usage Scenarios- Noah
- Information Object Model- Noah
- Essential Use Case Task Interaction Model- Naail

Section 2

Interaction Design Requirements:

Level 1: Problems
Level 2: User Error
Requirement: Undo button or backup for accidental errors like deleting something
Note: Make sure there is ticket history that gets saved. In interviews concern was expressed about fear of over complicated dashboard and messing something up.

Level 1: Good Dashboard Features
Level 2: Communication between user and IT staff
Requirement: Easy way of communication between the user and IT staff
Note: In design consider on the dashboard to have direct messages

Level 1: Desired Improvements
Level 2: Simplification
Requirement: Dashboard having a simple interface that the IT staff finds easy to use to complete tasks
Note: In design, test out different layout options and figure out simplest and easiest to use

Level 1: Problems
Level 2: Need more detailed status updates
Requirement: Have estimated time and progress included for the user
Note: More thorough than just open, in progress, and closed

Level 1: Good Dashboard Features
Level 2: Automated emails
Requirement: Send update emails to user on status
Note: In interviews this was stated as a great feature

Level 1: Desired Improvements
Level 2: Ticket summary
Requirement: Both for user to understand problem and for IT staff to reference to help resolve for repeated occurrences
Note: Make sure saves to ticket history

Level 1: Staff should receive notification when assigned to them
Level 2: Admin should be able to assign to all users
Requirement: Admin should be able to assign alert/ tickets to staff.
Note: This will allow tickets to be dispersed properly and completed on time

Level 1: Dashboard should provide graphs
Level 2: Graphs should be updated consistently
Requirement: Graphs should be used to show how many tickets are open and need to be completed. The graphs should also show security posture score. They should be updated as tickets are completed
Note: This will keep the staff organized and aware of workload

Level 1: Staff should know which alerts are more critical
Level 2: Highest severity should be on top of page
Requirement: Alerts should be grouped based on severity
Note: Ensures most critical alerts are worked on first

Level 1: Users should be able to view previous tickets and alerts
Level 2: Users should also be able to edit them
Requirement: Users must be able to look at their previous work and make the proper adjustments
Note: This will keep work accurate and will allow users to see what they have done previously

Level 1: A tile should be displayed on the dashboard representing open alerts/tickets
Level 2: Tile should be updated as alerts/tickets are resolved
Requirement: There should be a tile that shows the number of open alerts and tickets that need to be addressed by the personnel. It should also update when they are closed, or new ones appear.
Note: This will keep users aware of what needs to be done.

Level 1: AI usage for status updates
Level 2: The status update should be sent to user as soon as ticket is closed
Requirement: Artificial Intelligence should be used in the dashboard to provide staff and users with updates on the tickets
Note: This will increase efficiency and staff will not have to manually provide updates

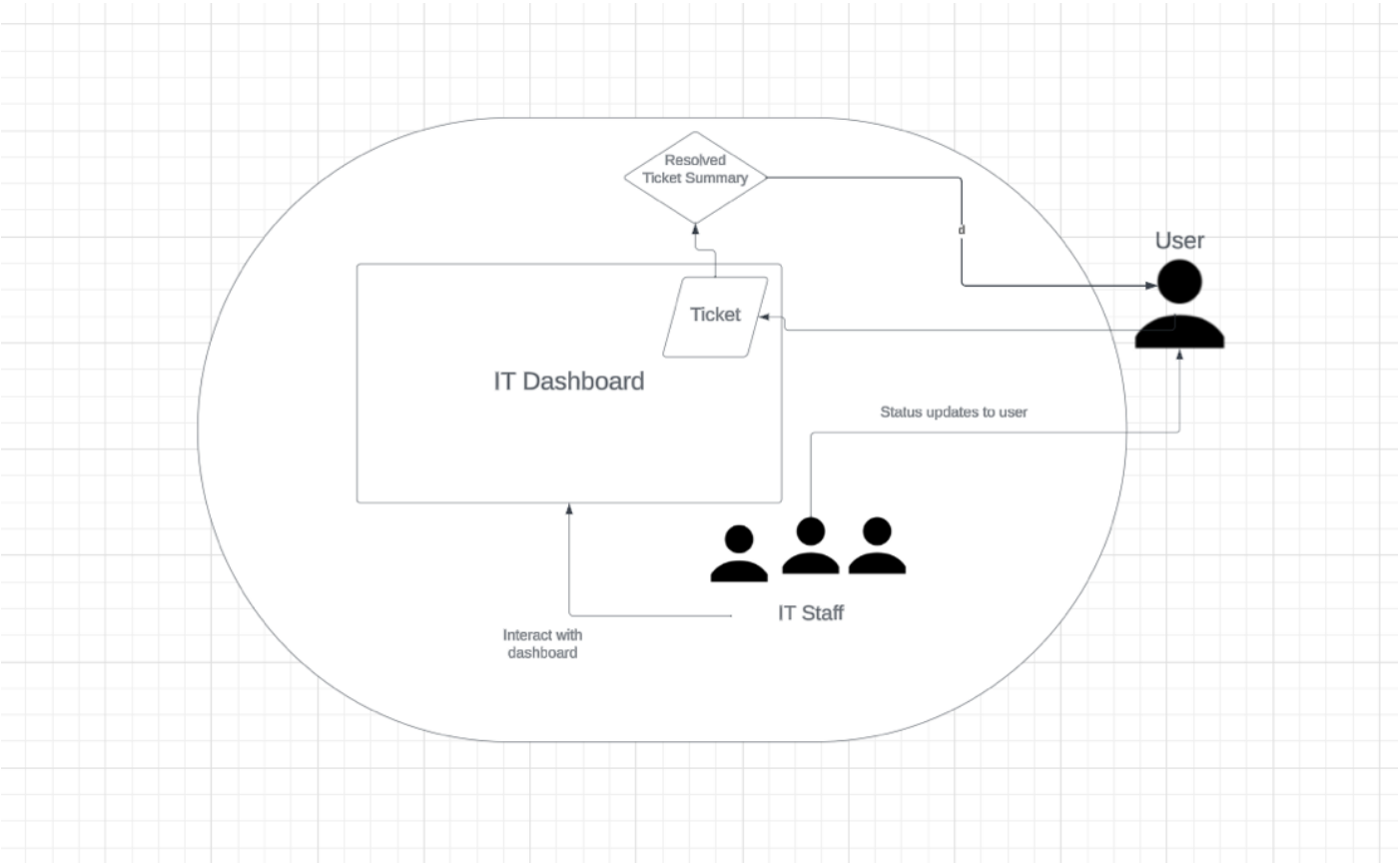
Level 1: Tickets and alerts should provide name of user who worked on it
Level 2: It should also provide the day and time
Requirement: When tickets are being worked on, it should be known who is working on it and at what day and time.
Note: This will hold the staff accountable for their work.

Level 1: Good Dashboard Features
Level 2: Dashboard Design
Requirement: Visually appealing Dashboard
Note: Styling makes the dashboard look nice and organized. Color coded

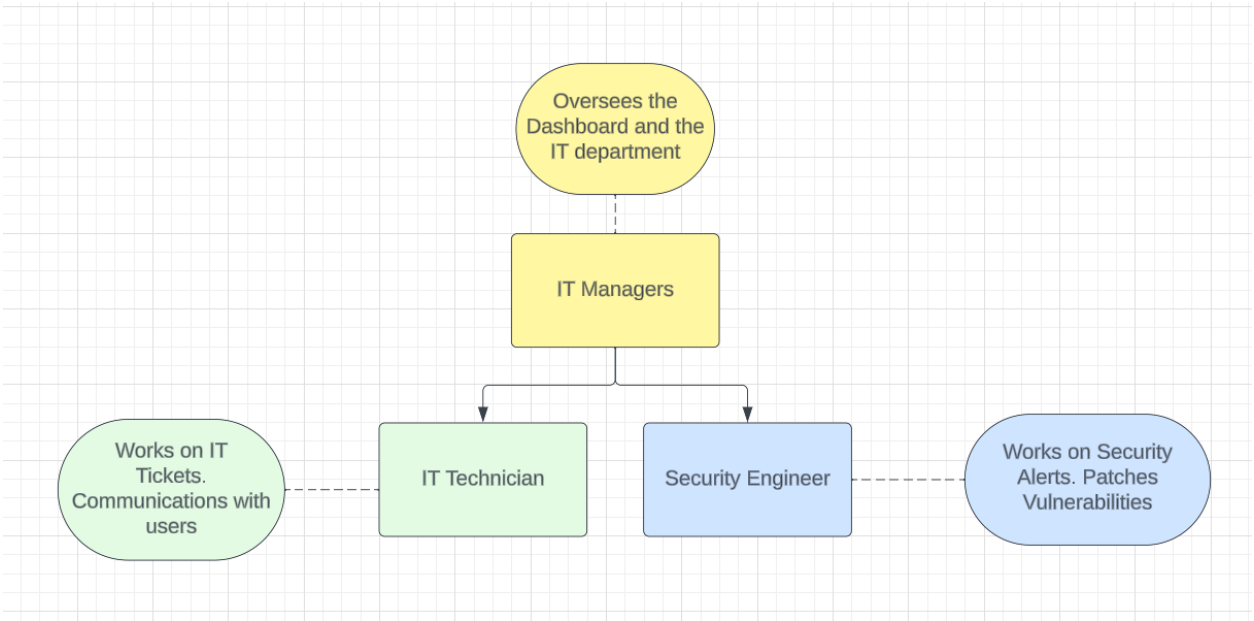
Level 1: Desired Improvement
Level 2: Help for Staff
Requirement: If Staff run into problem with ticket or dashboard there is an option to request assistance and explain the problem
Note: Button that says “Request Help” or “Report Problem”

Section 3

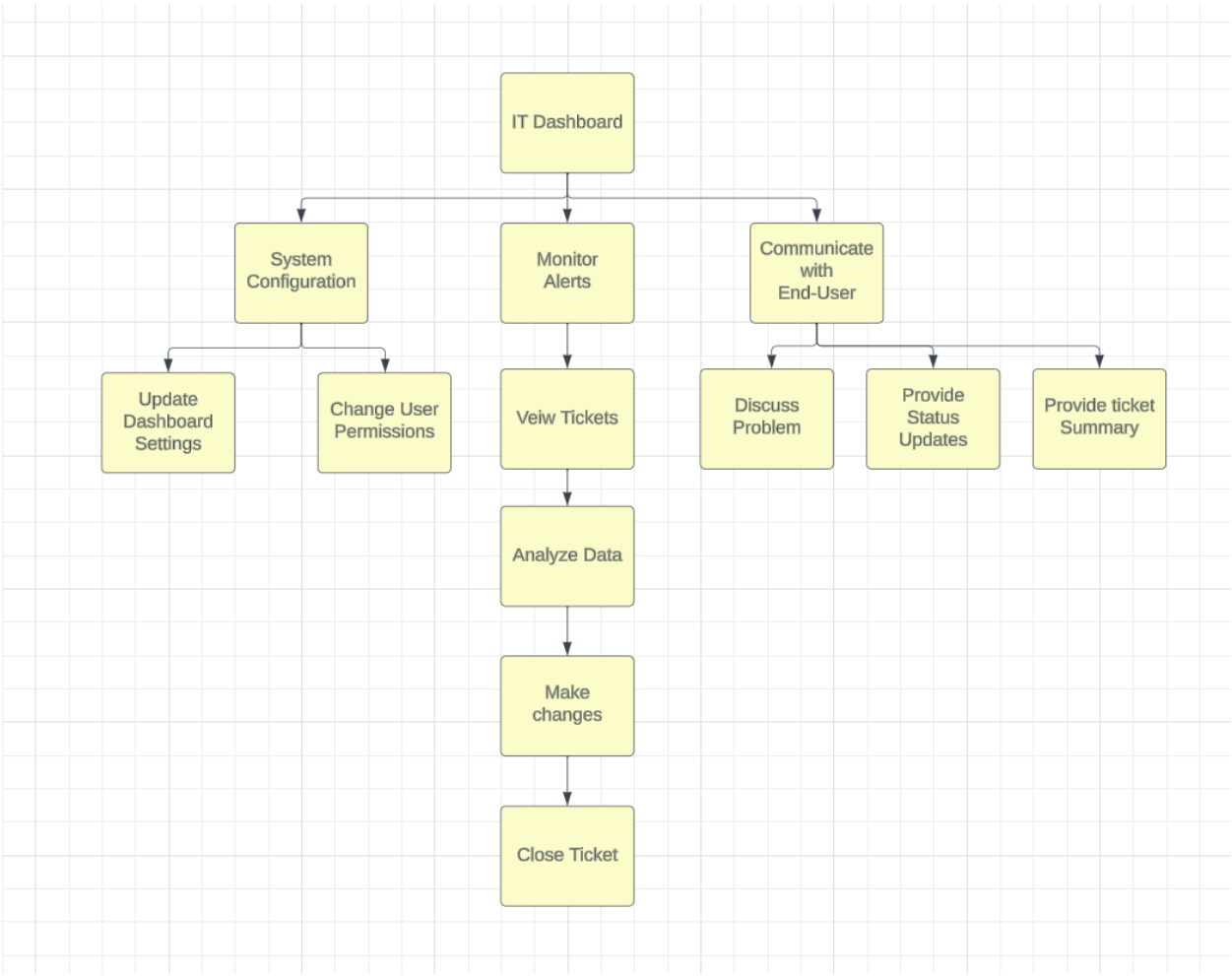
Models:



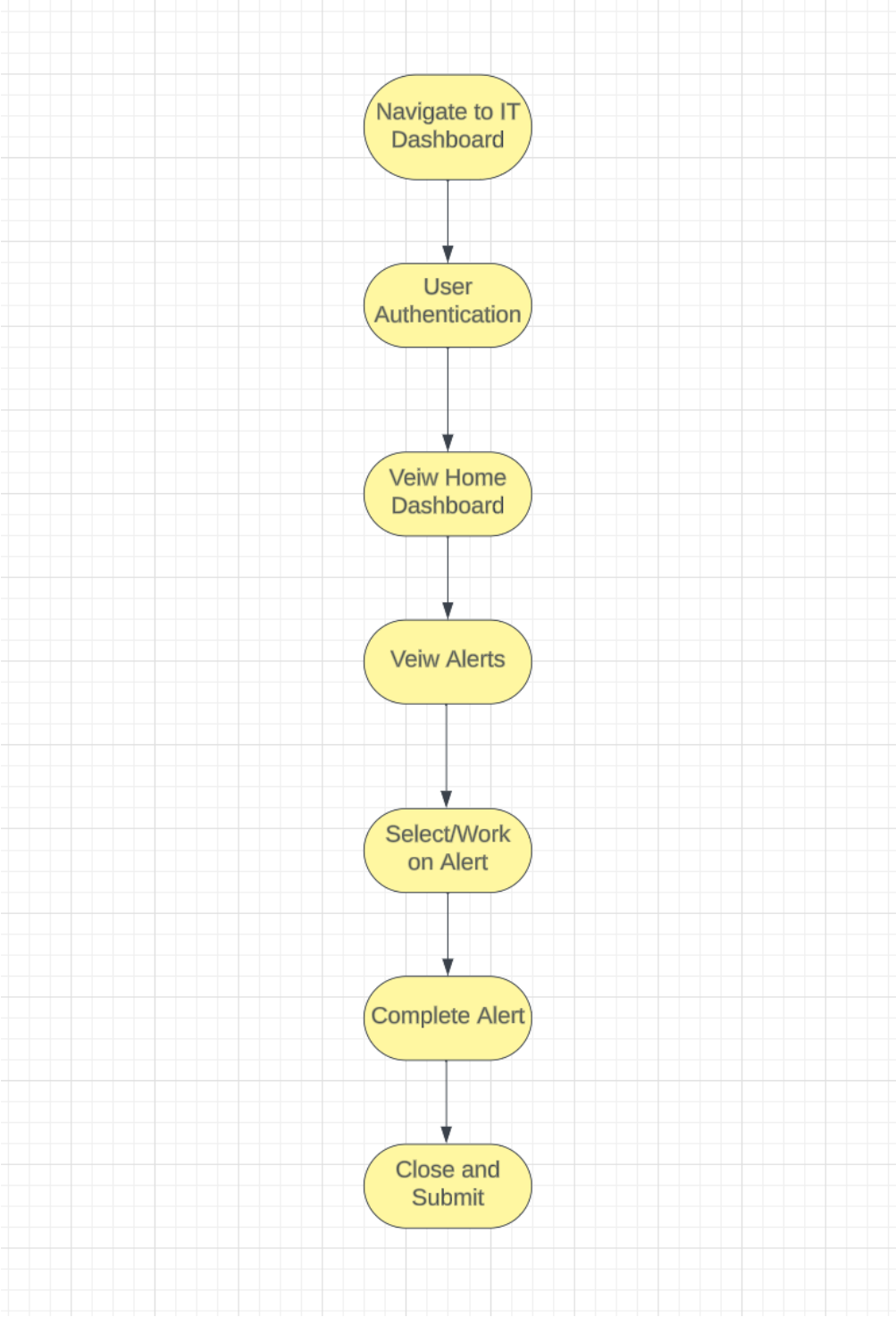
Workflow Model - Noah



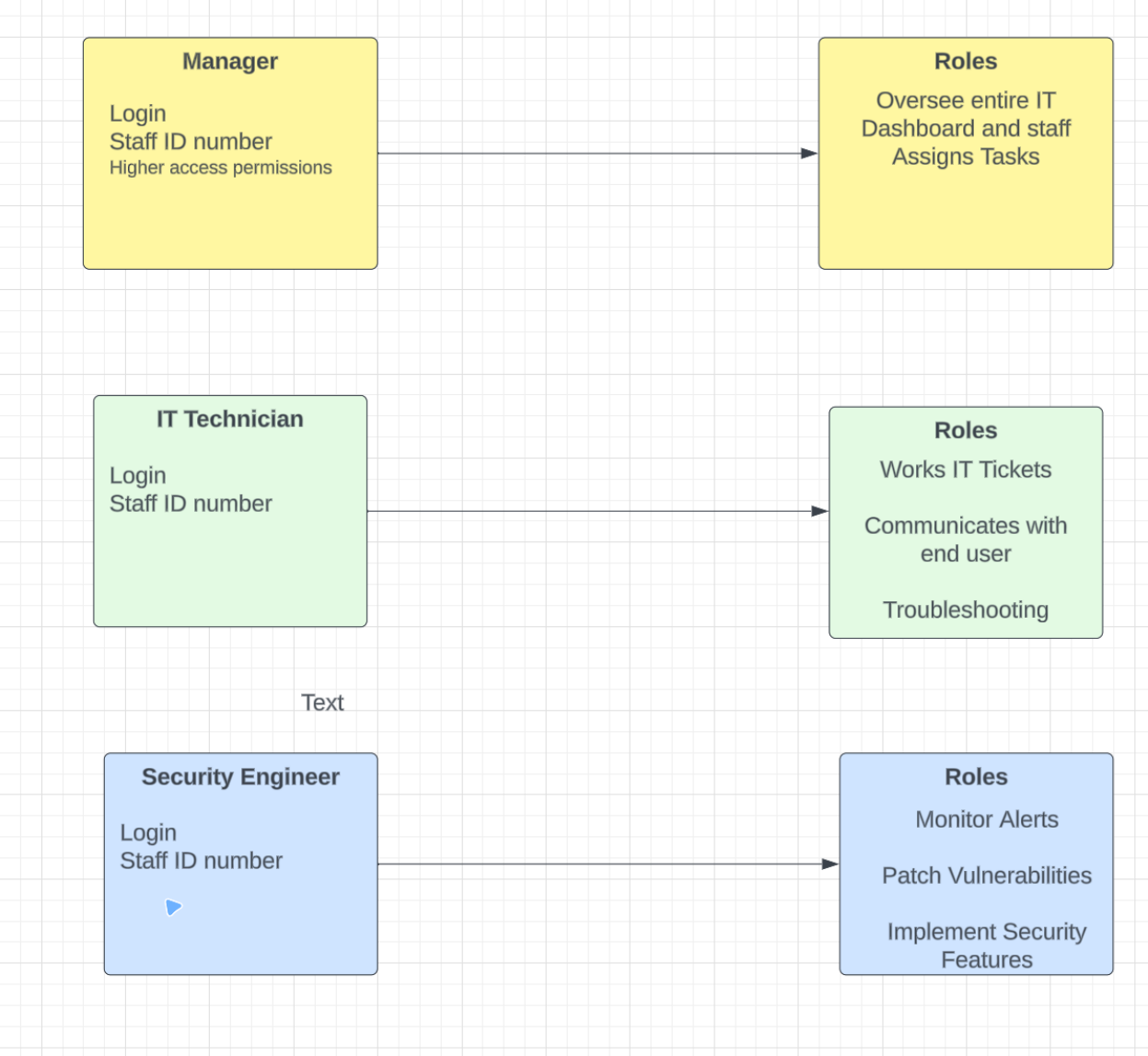
Work Roles Model - Naail



Hierarchical Task Inventory Model - Naail



Step-by-Step Task Interaction Model - Noah



The User Classes Model - Naail

Usage Scenarios - Noah

Dave is a security analyst and receives an alert for suspicious authentication on the company network. He logs into the dashboard and authenticates with his proper credentials. He then clicks on the alert and begins digging. He sees the users account name that has suspicious activity associated with it. From here, he investigates the accounts logs to find anything out of the ordinary. He finds the device, time, and workstation location. Dave deems everything to be normal but contacts the user and ensures they were at work and logging in at that time for extra precaution. Dave then writes his notes and closes the alert.

Essential Use Case Task Interaction Model - Naail

User- Submits ticket

Description- User encounters error with password

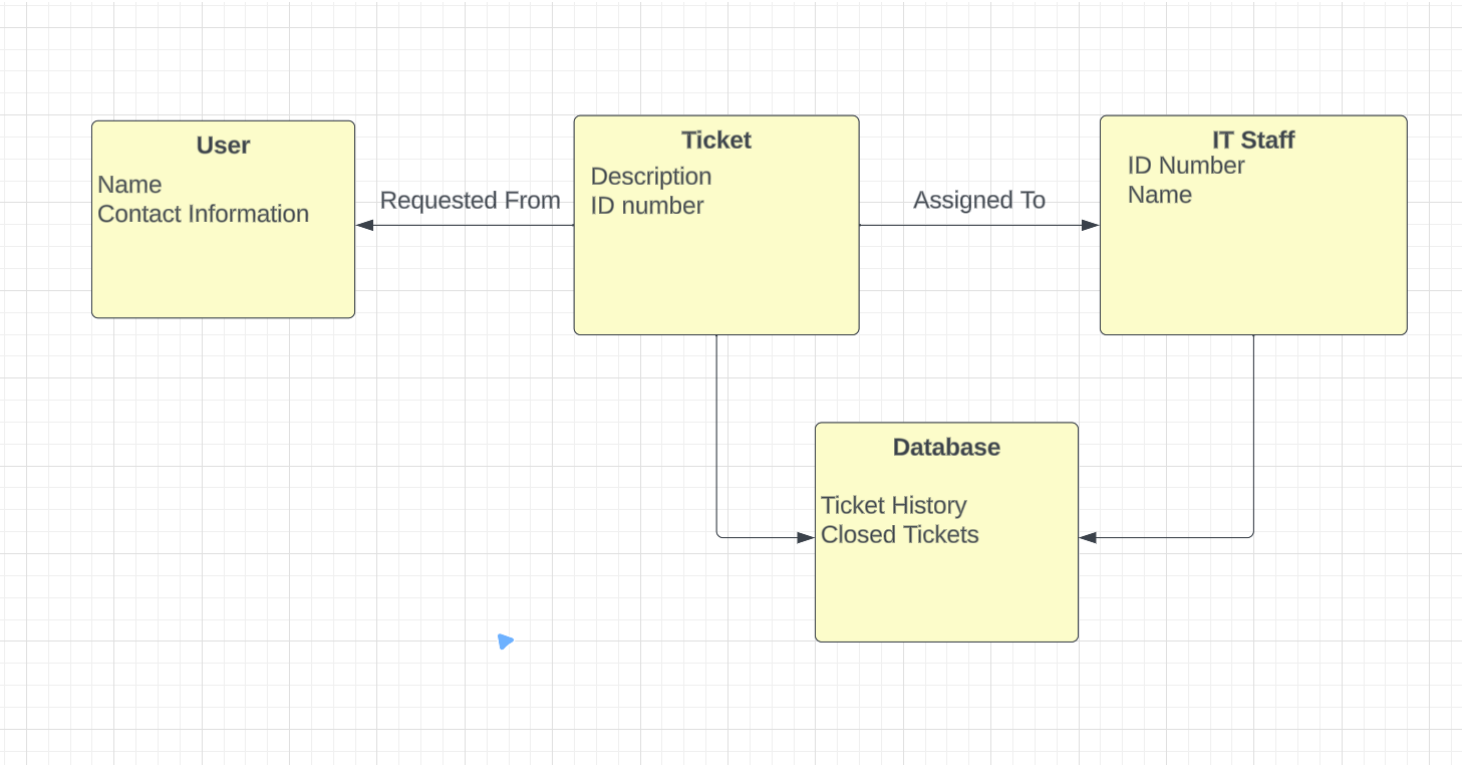
IT Technicians Steps:

1. Navigate to dashboard
2. Authenticate with credentials
3. View Ticket
4. Contact User
5. Troubleshoot the issue
6. Resolve the Issue
7. Close the ticket
8. Write notes and submit summary to staff and end user
9. Contact user and tell them issue has been resolved

Description- Alert has been triggered for malicious software on company workstations

1. Navigate to dashboard
2. Authenticate with credentials
3. Open alert
4. View log history
5. Remote into user’s computer and check for malicious files
6. If malicious files our found, run script to remove them
7. Complete a note saying malicious files were removed from a script
8. Close Alert

Information Object Model - Noah



Project Part 4: Design

Persona Statements:

Noah's Design Persona:

John is a member of the IT staff that works with this new ticketing system dashboard. John usually gets assigned to security alerts that come up. He got an alert for a ticket created where a user lost access to their account and needs help regaining access. John opens the ticket and reads all the details and starts communicating with the user through the dashboard to get more insight into the problem. Once John understands how to solve the issue he then does so and closes the ticket and sends a ticket summary to the user letting them know the problem was solved.

My persona is IT staff person named John. They work focusing on IT security. I developed this persona by thinking of the different possible users' roles on this IT dashboard and choosing one of those roles. Security is one of these roles with many problems that could come up that need to be solved by this persona.

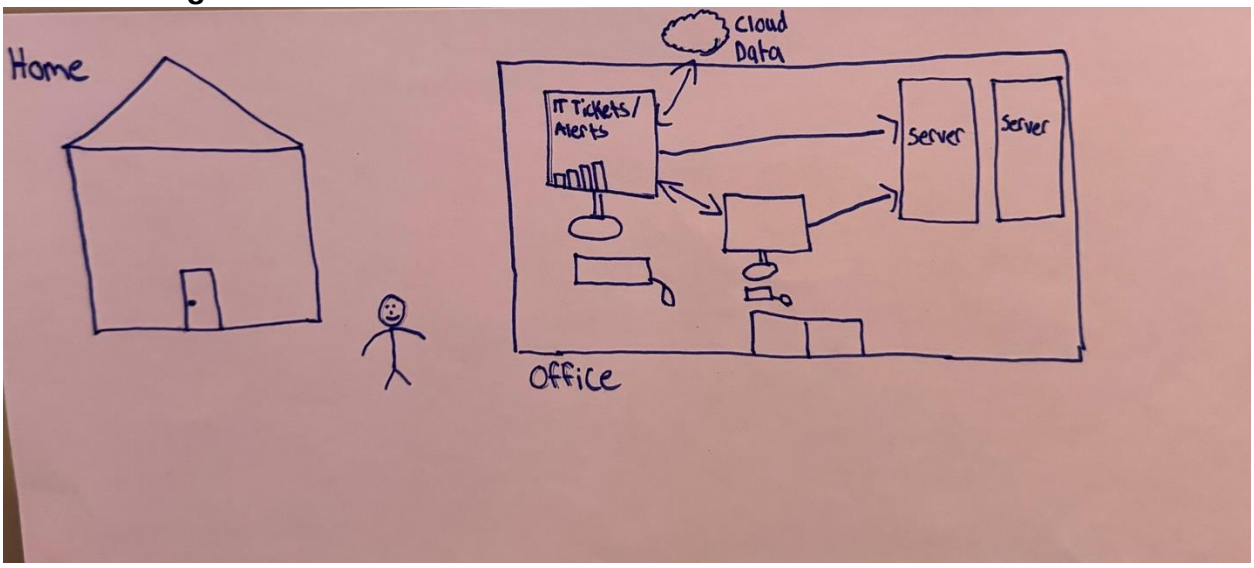
Naail's: Design Persona:

My persona, Tom Smith, interacts with the dashboard to solve IT tickets and mitigate security alerts that are present on the network. Each morning when he comes into work, he authenticates into the dashboard and looks at the number of IT tickets and the number of security alerts on the network. He looks at which alerts are detected as most critical and begins working the alert. Within the dashboard, Tom views the log history, network traffic, and users that are identified in the alert. After working the alert and identifying the alert as harmless, he closes the alert and leaves a comment of his findings, so the other team members know what he did. However, if Tom does need to remove something malicious from a user's computer, he can remote into their workstation and run some scripts to do so. Tom then continues to work the next alerts based on their severity. At the same time, Tom and his other team member work to complete IT tickets that fellow employees submitted. This work throughout the day keeps the company safe from vulnerabilities and allows operations to run smoother by tackling IT issues.

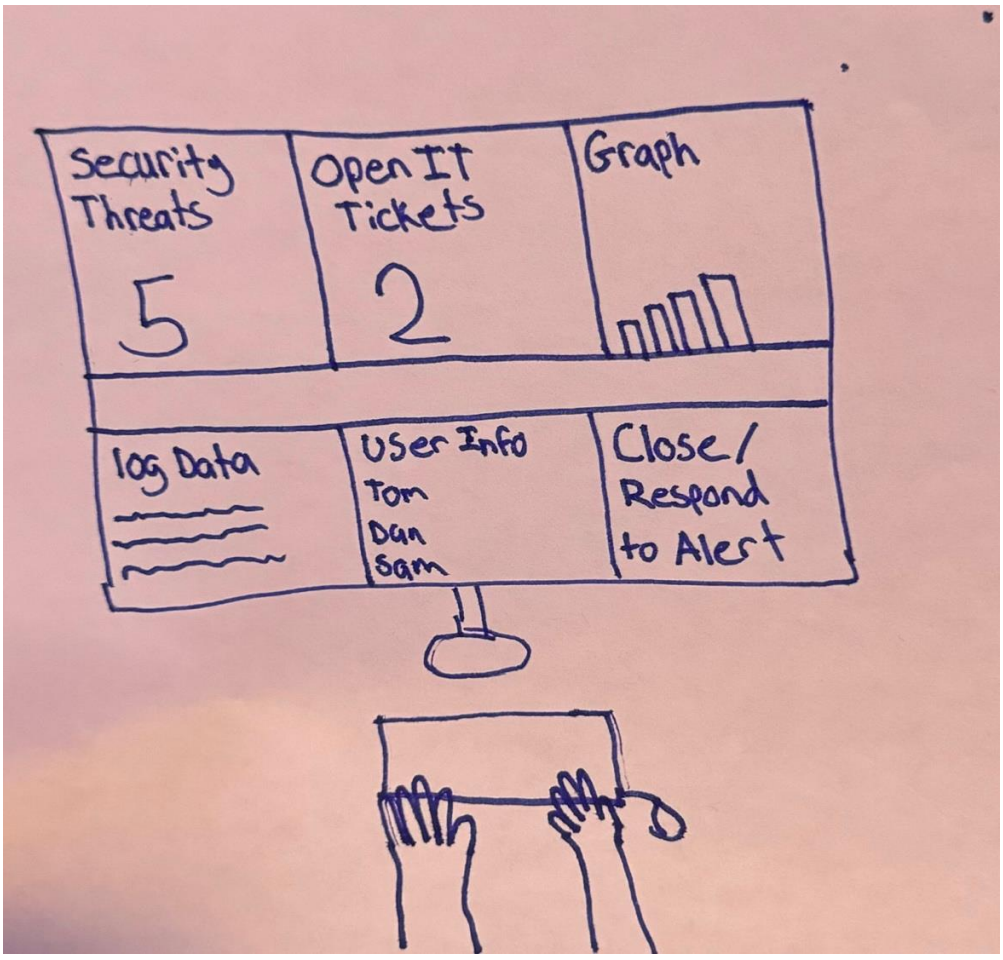
The persona for this dashboard is Tom Smith. Tom is a male in his mid-twenties, graduated college with a bachelor's in computer science, and has been with the company for 2 years. Tom is a member of the Cybersecurity Operations Center (CSOC) for a smaller size company. I created this persona by using my past internship experience at Marathon Petroleum where I worked in the CSOC. By understanding the CSOC's goals and responsibilities, I was able to come up with this persona.

Sketches:

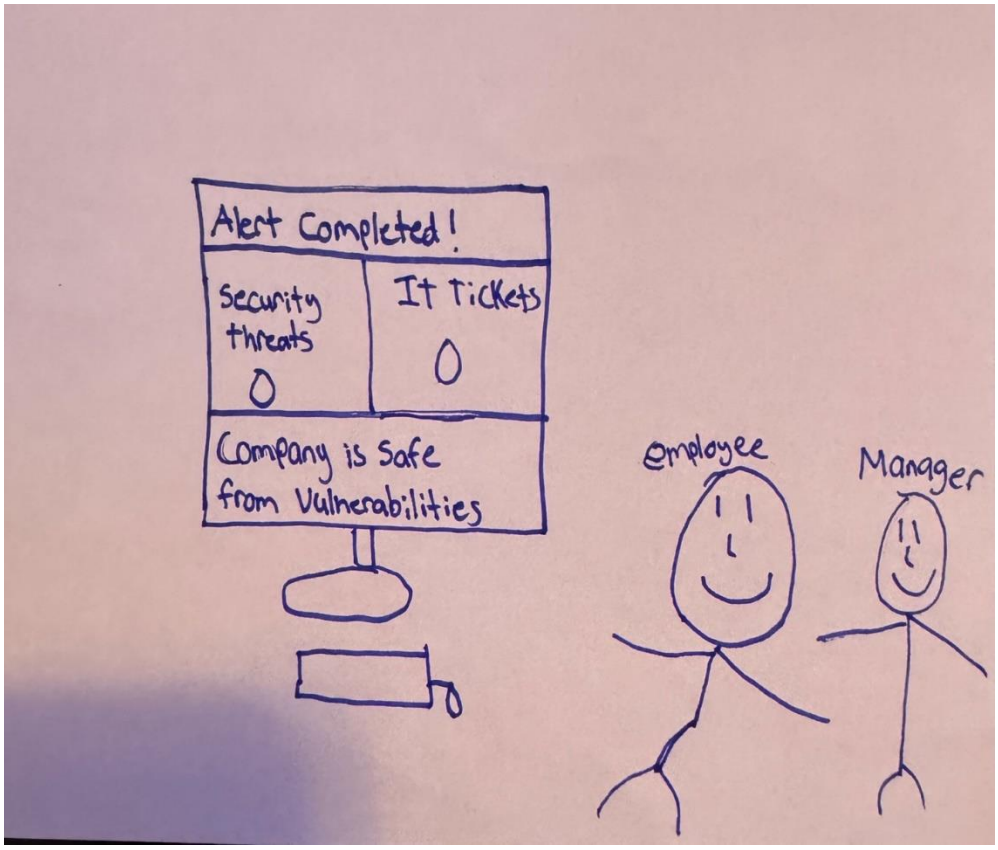
a. **Ecological: Naail**



b. **Interactive: Naail**



c. Emotional: Naail



Designer's mental model paragraph:

This IT ticketing dashboard system efficiently handles and resolves tickets while addressing vulnerabilities on the company network. The dashboard is useful for our clients to proactively solve their users' IT problems and mitigate security risks on the network. It is organized through different tiles on the homepage that represent different tasks regarding IT tickets, data, security threats, user information, and more.

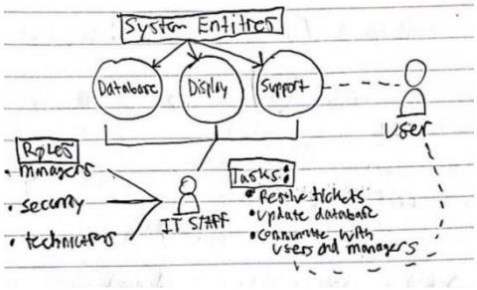
Metaphors:

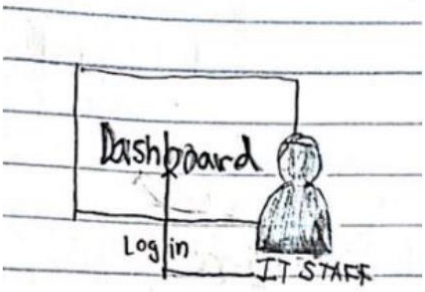
- Our dashboard is a control center for your organization's IT operations like air traffic controllers manage flights and control tower.
- Security alerts on the dashboard are a traffic light system where red signifies high priority, yellow indicates caution, and green is low risk.

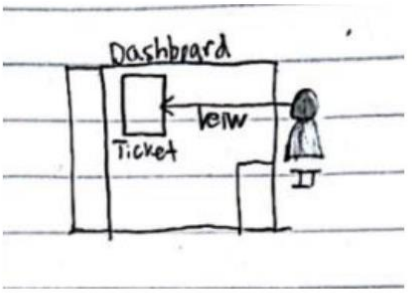
Storyboard:

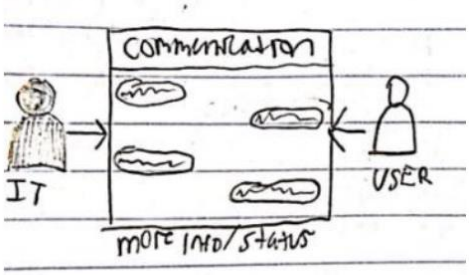
STORYBOARD PANELS FOR UX ENVISIONING

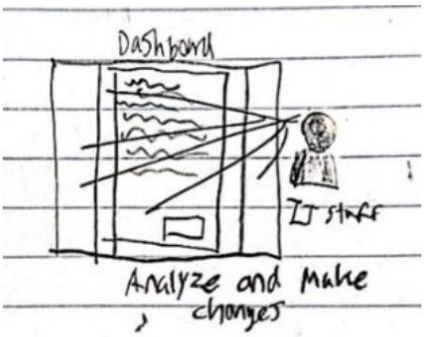
TEAM X – IT Ticket Dashboard – Noah Wardega

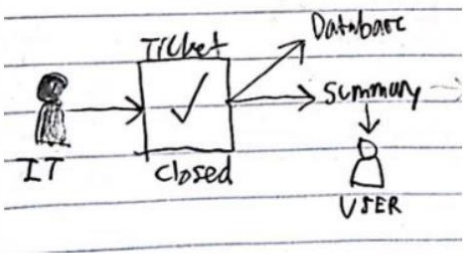




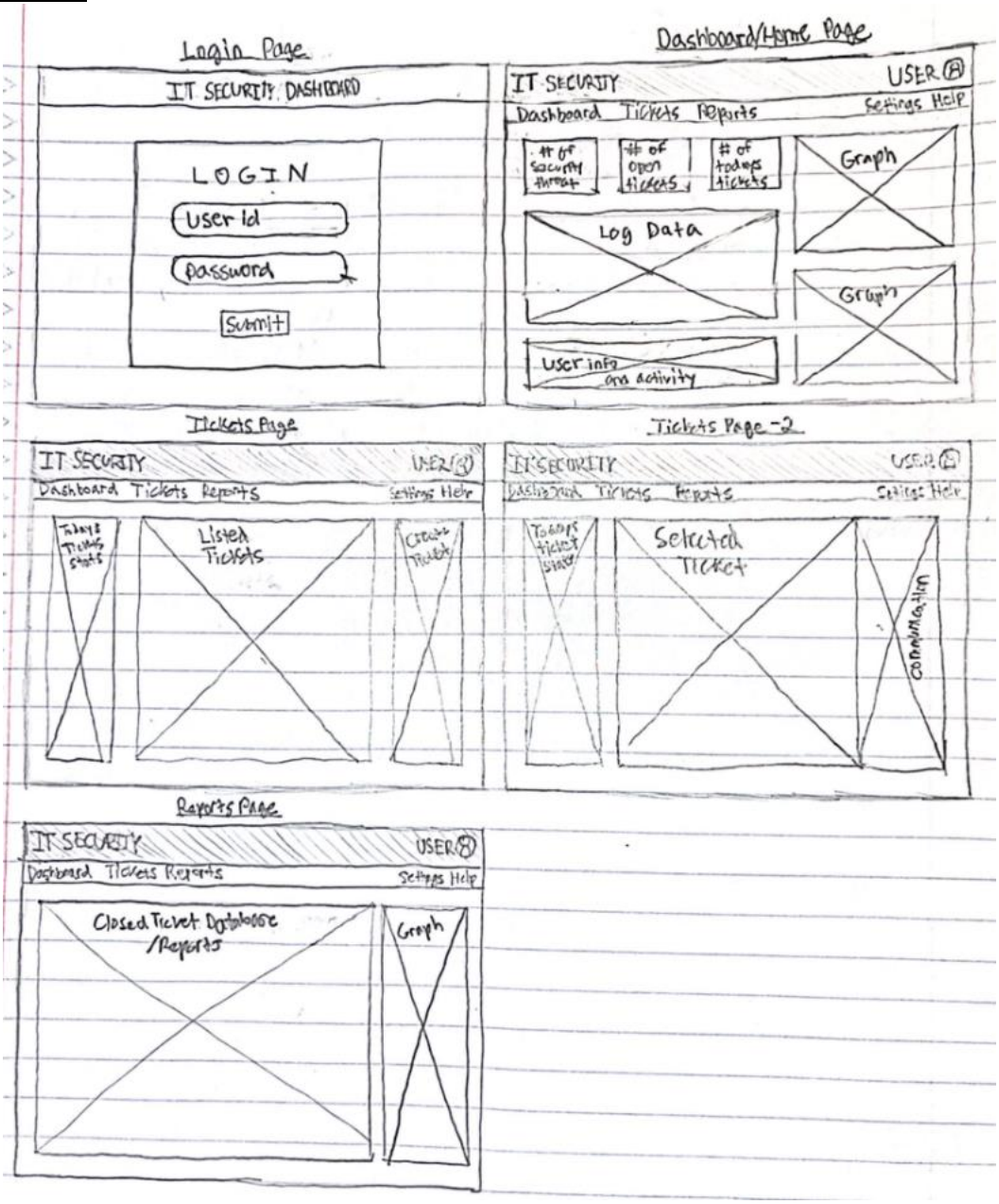








Wireframes:



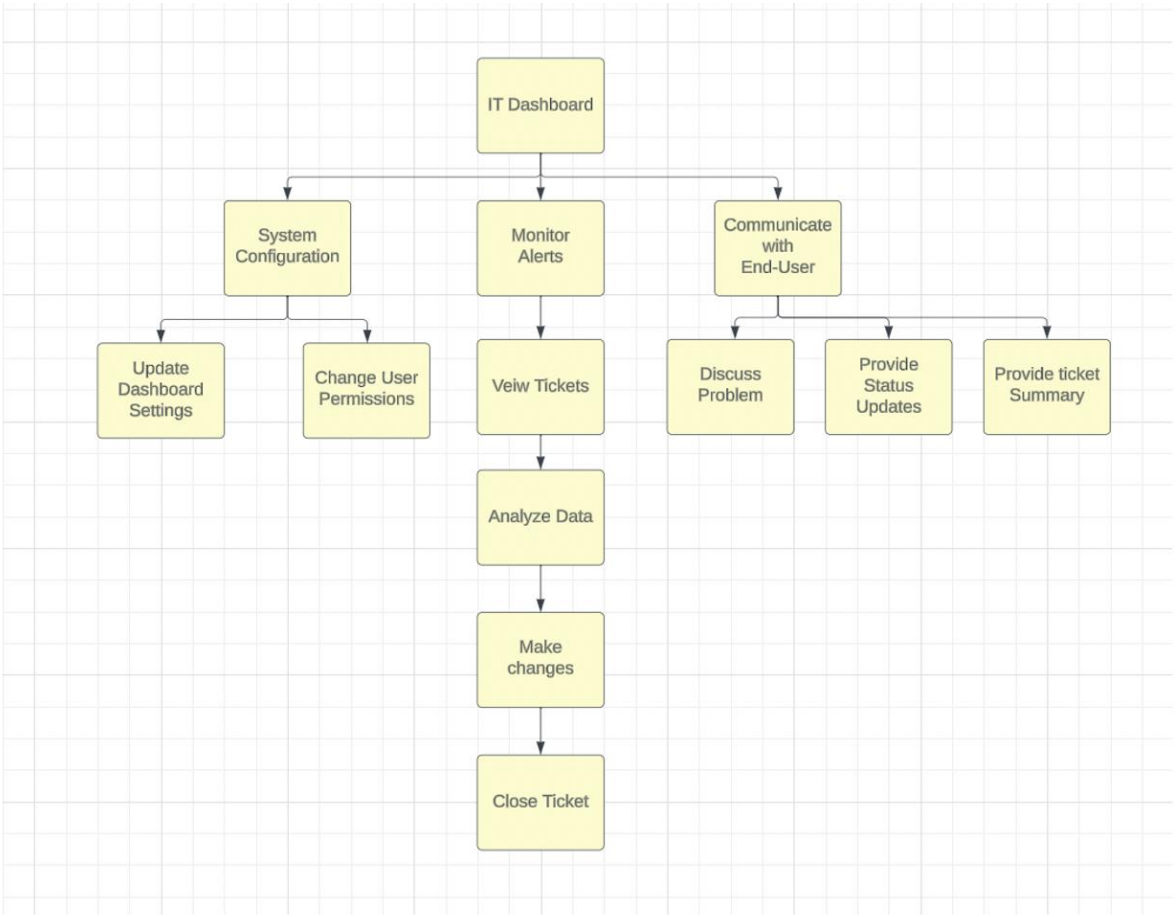
This shows the process of opening and closing a ticket by going through the following steps. Logging in, viewing dashboard, selecting a ticket on the ticket page, viewing/resolving, and closing/report.

Project Part 5: Prototype

1. **Overview**:

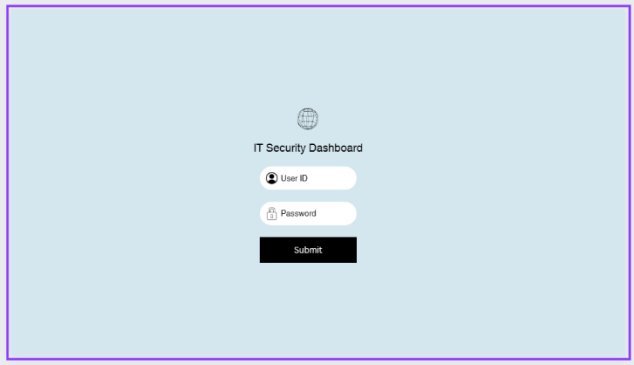
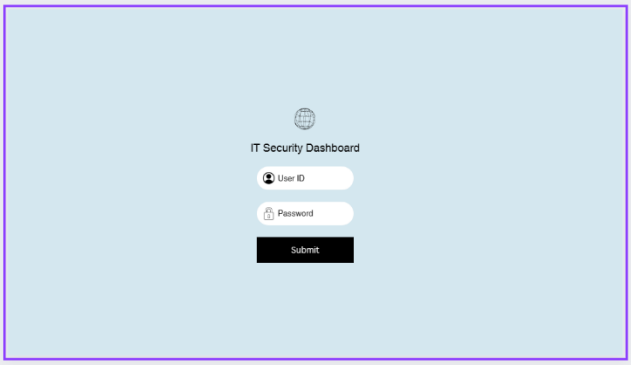
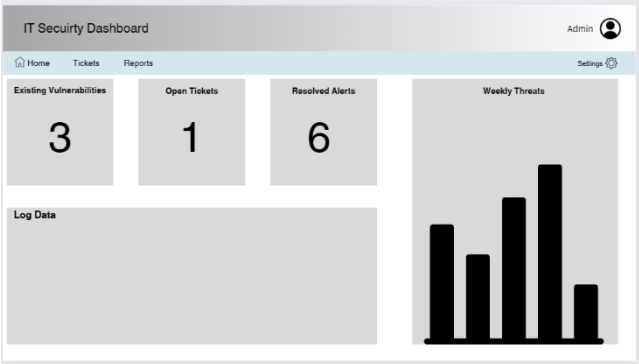
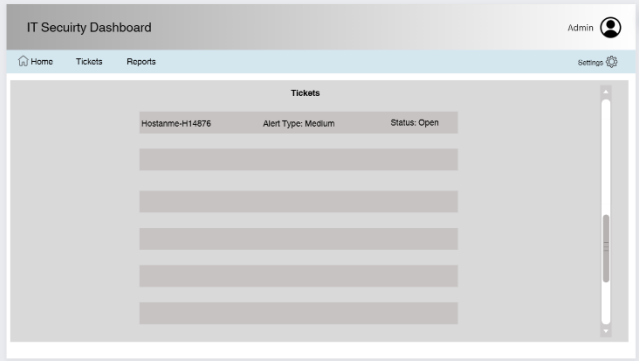
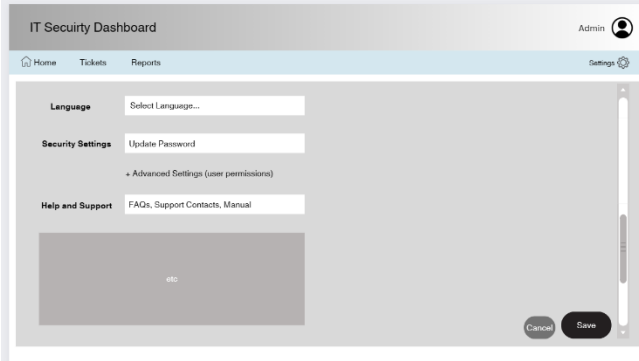
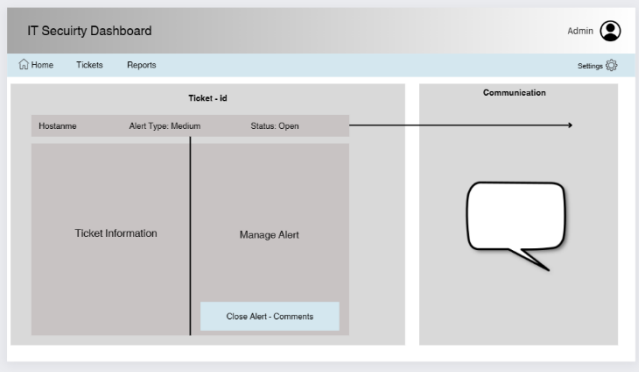
   We decided what to include based on our HTI diagram. From there, we decided to include the steps a user would have to take to complete the task. This method was used to decide how much to include in the prototype.

2. **HTI:**



Hierarchical Task Inventory Model - Naail

3. **Prototype Process:** We used Canva for building our prototype. For the design we used sketched wireframes of the pages from the previous project as blueprints to create a higher fidelity prototype. Canva was really easy to use and provided us with all the tools we needed to create these pages.
4. **The Screens:** (2 tasks)

Task 1: Monitor Alerts/View Ticket	Task 2: System Config/Update Settings
	
Login	Login
	
Click Tickets on Navigation Bar	Click Settings on Navigation Bar
	
Select a Ticket	Make changes
	
	Click Save

5. **The Pilot Test Walkthrough:**

We conducted the Pilot test by having our client Jakob run through the prototype. The results were overall very successful. He said it was very user-friendly, easy to understand, and the aesthetic of the design was well done. One improvement he suggested was to add labels of what was being clicked so it was clear how the pages transitioned. We learned to really think like the user and include features that are important to them to have.

Project Part 5: UX Evaluation

1. Our UX Evaluation process:

   We are asking 6 users to evaluate our IT Security Dashboard prototype. Specifically, the process of clicking on a security ticket and changing configuration settings. We asked 3 people to do this in person and 3 people to complete this online. The people testing our prototype are UC undergrad students. We're using a combination of qualitative and quantitative data collection through questionnaires and observation.

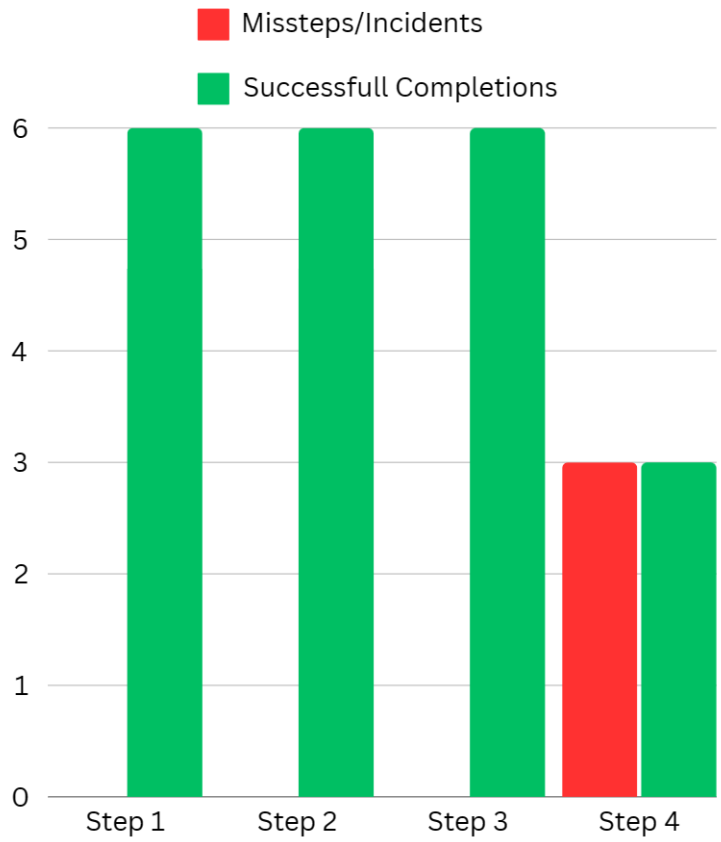
2. List of Work Tasks used for inspection process:
   a. Clicking on a Security Ticket
      i. Navigating the dashboard to find a specific ticket and see the details of it and communication.
   b. Updating Configuration Settings
      i. Navigating the dashboard to go into setting and save updates.

3. Quantitative Data tables:

Task 1: Monitor Alerts/View Ticket – Time It Takes
Yellow = Incidents/Missteps

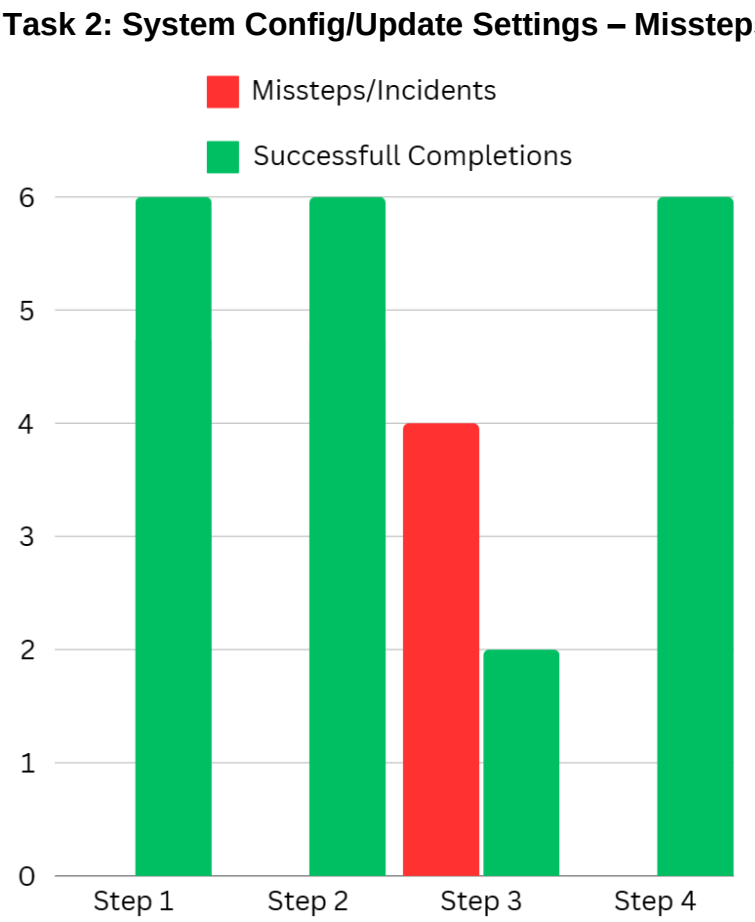
Task Steps	Login	Click "Tickets" on Nav Bar	Select a Ticket	View Ticket info
Users	Time (s)	Time (s)	Time (s)	Time (s)
1	5	1	3	11
2	7	2	2	9
3	4	2	2	4
4	5	1	1	10
5	8	1	1	3
6	4	2	3	2
AVERAGE	5.5	1.5	2	6.5

Task 1: Monitor Alerts/View Ticket – Missteps



Task 2: System Config/Update Settings – Time It Takes
Yellow = Incidents/Missteps

Task Steps	Login	Click "Settings" on Nav Bar	Make Changes	Click Save
Users	Time (s)	Time (s)	Time (s)	Time (s)
1	4	1	4	1
2	6	2	11	1
3	5	1	9	2
4	3	1	10	1
5	6	1	12	2
6	4	1	6	1
AVERAGE	4.6	1.16	8.6	1.3



4. Summary of Quantitative Data:
   For task 1 the averages to complete steps 1 through 4 were 5.5, 1.5, 2, and 6.5. Step 4 had 3 incidents of users being confused about what to click next which caused longer times for users 1, 2, and 4. For task 2 the averages to complete steps 1 through 4 were 4.6, 1.16, 8.6, and 1.3. Step 3 had 4 incidents of users being confused about what to click next in the settings which caused longer times for users 2, 3, 4, and 5.

5. Qualitative Data:
   a. **List of Questionnaire questions for Task 1 and Task 2 (6)**
      Is the visual design attractive?
      Does the product feel robust?
      Does the dashboard feel user friendly?
      Does the layout make sense?
      Are there features that stood out that are helpful?
      Are there any improvements that could be made?

6. Summary of Qualitative Data for Task 1 and Task 2:

Is the visual design attractive?

Our users found the design of our dashboard to be attractive. They said it was very clean looking and did not feel overwhelming.

Does the product feel robust?

The 6 users found the dashboard to be robust because of the many features it contains. For example, chatting with the user, identifying incidents, and responding to the vulnerabilities.

Does the dashboard feel user friendly?

The dashboard was found to be very easy to understand and user friendly.

Does the layout make sense?

The users said the layout makes sense and how the pages progress.

Are there features that stood out that are helpful?

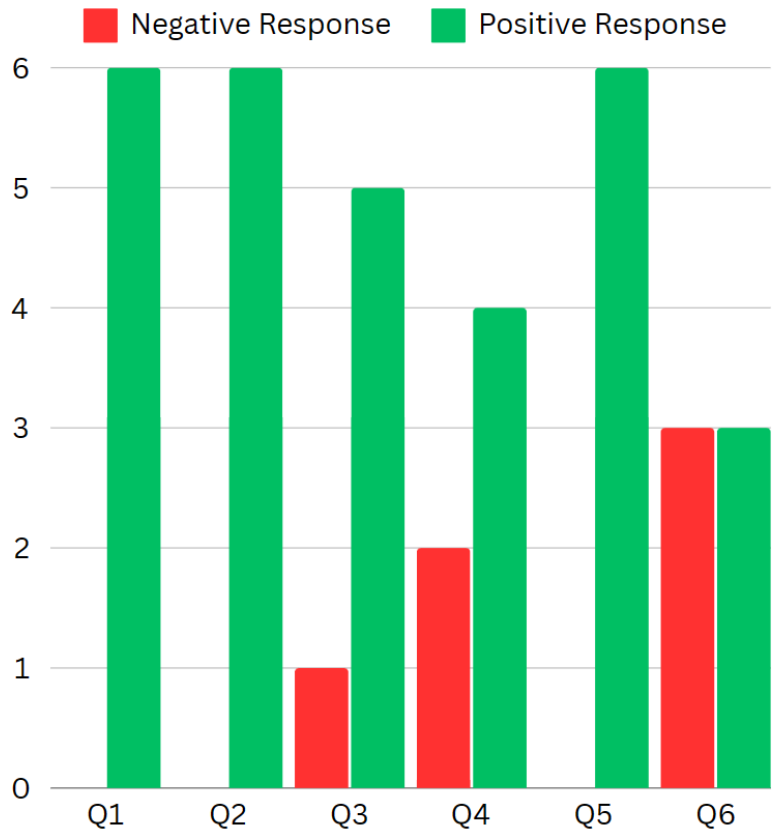
They found the chat function and homepage tiles to be helpful. The users also liked how the configurations options were set up.

Are there any improvements that could be made?

Users said they would appreciate the enhancement of associating specific colors with each alert type. For instance, a high alert should be labeled red, medium in orange, and low in yellow. This it too providing clearer visual cues. The users found no issues with the configuration steps or visuals. They would also like to see some more configuration options included for task 2. We will evaluate what options should be added and subcategories.

User Comments:

“I like the aesthetic of the dashboard.”
“It is easy to understand.”
“I like the homepage tiles and graphs.”
“Color for alert types would be great for task 1.”
“Include more configuration options for task 2.”
“There are many great features in this dashboard.”



7. Identify Critical Incidents from evaluation:
   Task 1: Step 4: Viewing a ticket – there were three incidents here where users didn't know what to do next. I think this is due to an unclear ticket display page and unclear task instruction.

   Task 2: Step 3: Make Changes in Settings – there were four incidents here where users didn't know what to change. I think this is due to the user being unsure what changes they can make because we didn't design different options for the users to pick.

8. Conclusion and Reworks. Summarize which tasks work and which needs tweaks:

   For task 1, we found that we need to tweak the viewing ticket information section. We will adjust this part to make it more clear for users where to click. This could

be done by adding a view ticket button. For task 2, we need to tweak the make changes portion. We will work to make the different configuration option clearer by potentially adding subcategories to the different setting options. Overall, the 6 users really liked the dashboard and all the features it includes. They liked the aesthetic, and how user friendly it was. They all thought it was very easy to understand and a robust cybersecurity tool for companies to use to protect themselves from cyber-attacks.