Structured System Analysis and Design

Project Name: E-Forms Tracking and Incident Management System

Deliverable 4: Systems Design

Contents

Introduction

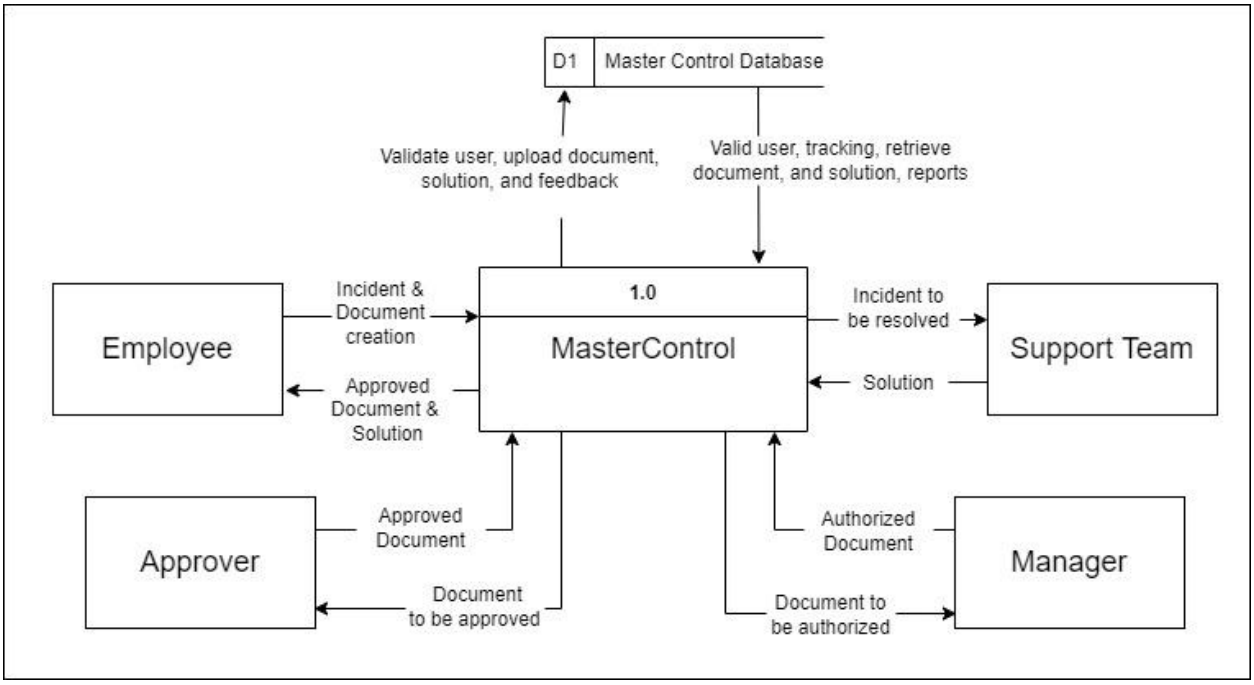
Design Strategy

Our suggested solution is using Mastercontrol's modules, a secure, real-time, and cost-efficient system based on the Catalent information technology resources for document approvals, incident management, and quality management, instead of using DocuSign for document approvals which has some issues like security, time-consuming, and no workflow. Our decision to go with MasterControl's electronic forms and incident and corrective action modules is justified because the software is already used in the house and is an onboarding tool that all employees have access to. Therefore, there is no need to put in tickets for access, unlike other options like DocuSign and the traditional paper-based method. Since this is a system that is already in use, the cost to unlock this module and release it into production can be less than introducing a new system. Another advantage is that users may already be familiar with MasterControl. Therefore, there will not impede training or any pushback from users. Also, MasterControl frees up time, money, and resources for the business to spend on purchasing and maintaining new software.

Using MasterControl will impact all departments within the business that require form and document approvals. It will have an impact on all Catalent locations, including remote workers. Because everyone in this firm utilizes forms, the recommended solution will benefit everyone. It will be especially beneficial to project managers and executives, as many initiatives require paperwork clearance from subject matter experts from several departments.

MasterControl's incident management and corrective action module can track issues that might develop into corrective measures. Routing, notification, delivery, escalation, and remedial measures approval become automated, and all corresponding paperwork can be securely stored. Additionally, stakeholders will be able to obtain data on the number of document approvals, information on concerns that have been raised and handled, and the overall efficiency of the process.

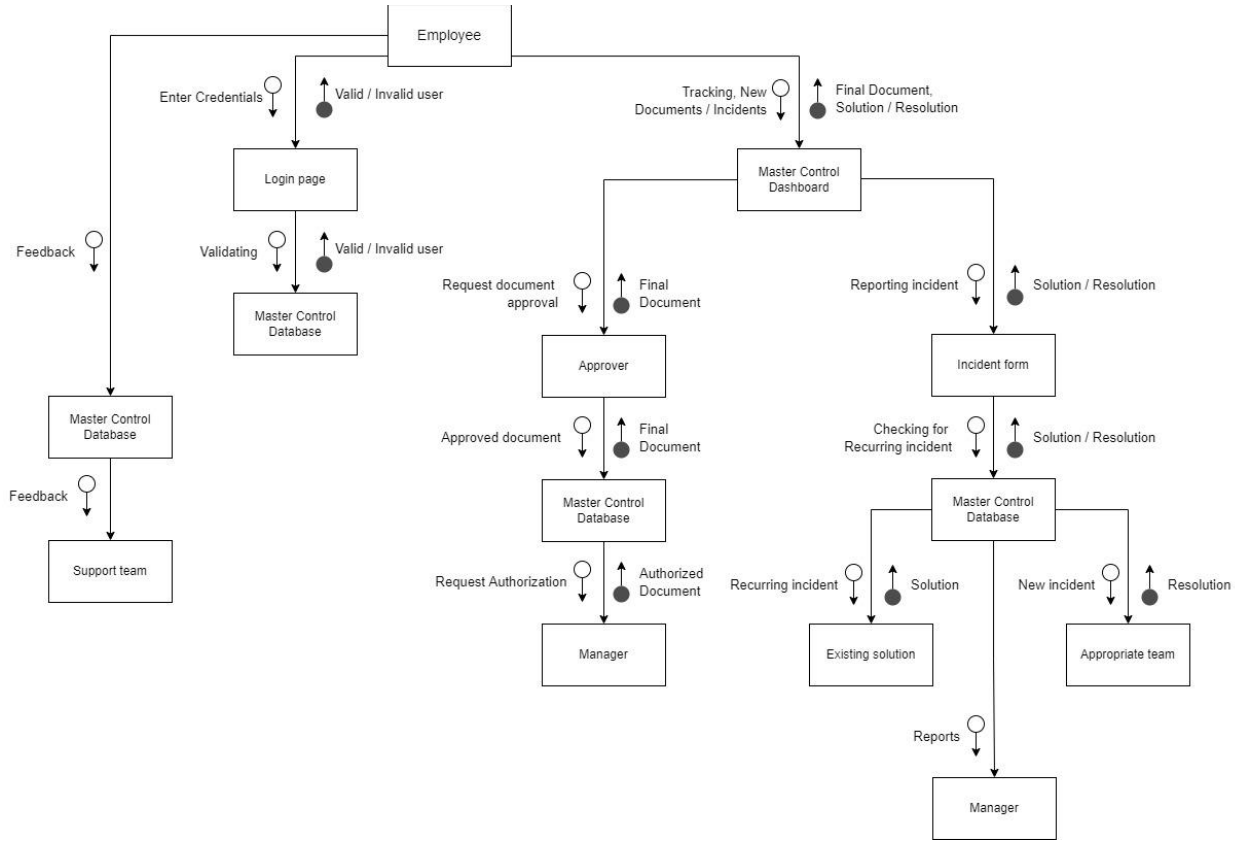
Level-0 Diagram



level 0 physical data flow diagram of the proposed system

The above Diagram describes the brief data flow through Master Control i.e., process 1.0. This is a Level 0 data flow diagram that includes 1 process, 4 external entities that are Employee, Approver, Support team, and Manager, and 1 data store that is master control DB. The Diagram describes how an employee will use Master control to get the document approved and authorized and how he will get the solution to the incident he will raise. This Diagram also shows the perspective of the Manager on how he will Authorize a document when the Approver approves it. This Diagram includes a support team and Approver who will help in incident resolution and document approval in this system. All the information to be stored in the process is stored in MasterControl Database like Login Information, tracking information, incident reports, authorized documents, etc.

Structure Diagram



Structure chart showing the high-level design of the proposed system

The above chart shows the architectural design of our proposed system Master Control. This diagram shows how the different modules interact with each other to resolve the issue for the employee raised in the problem statement of the project.

There are mainly four flows that are described in this chart.

1) First flow describes how an employee can log in to the system and master control DB to validate whether the user is authorized. Modules included are Employee, Login Page, and MasterControl Database

2) Second flow describes how the employee will raise the incident and how the solution will be given to the user either by the system or concern support team depending on whether it is a recurring issue or not, and finally manager is included in order to generate and see reports for the business use. Modules include

Employee, MasterControl Dashboard, Incident Form, Existing Solution, Manager, and MasterControl DB.

3) Third flow describes the document management system and how the document is approved by the approver and authorized by the manager and sent back to the employee by the system. Modules included are Employee, MasterControl Dashboard, Approver, Manager, and MasterControl Database.

4) Fourth flow describes how the employee gives feedback to the support team after the new incident is solved by the support team. Modules included are Employee, MasterControl Database, and Support Team.

User Interface Design

User interface (UI) design is the process through which designers develop user interfaces in software or electronic devices, emphasizing look or style. We only utilize web applications for MasterControl because it is needed for private information approvals, so the mobile application is not available.

User interface (UI) design is the method by which designers develop user interfaces in software or electronic devices with a focus on aesthetics or style. We only utilize web applications for the MasterControl because this MasterControl is used for secret information approvals; thus, the mobile application is not available.

Receiving Data

Other systems can initiate actions in MasterControl. It allows Login and log out and also pushes data into and pull data from MasterControl.

Sending Data

When actions that affect other processes managed by other systems are initiated in MasterControl, it will trigger a notification to the other systems. For example, when someone sends an approval, it triggers a notification to the manager immediately, then when he approves, it will trigger the person who has sent the document.

Web Service

These features are provided using a Web Services model, which allows loosely coupled applications to be created by combining MasterControl components with interfaces to ERP, CRM, or other types of enterprise applications.

User Interface Workflow

- Log in and log out.
- Push data into and pull data from MasterControl.
- Create a new InfoCard (the MasterControl tool that summarizes information about every document and serves as a placeholder for the document in the database).
- Retrieve InfoCard data from MasterControl.
- Check-in and check-out an InfoCard for easy tracking of multiple revisions.
- Edit an InfoCard.
- Provide an external link to the main file.
- Upload a new main file and/or attachments.
- There are two types of triggers. Document-based trigger: Metadata from the document's InfoCard will be automatically made available to the affected system
- Form-based trigger: Metadata from the document's InfoCard plus form metadata will be made available.
- It now triggers the specific person to whom it is mentioned and allows them to access it for a signature.
- It now enables the person or the team to approve the request.

The mechanism used for Navigation, Incident Creation, Document Management, Security, and User Feedback

MasterControl's navigation menus provide you with easy access to common MasterControl functions. They include the My MasterControl menu, a Portal search field, and the navigation menu for whichever modules have been installed. Mouse over the name of the module to see the menu for that module. Click the name of the module for a landing page that describes and provides links to some of the basic functions of that module.

In most instances, Application Rights grant access to the menu items and associated functions with the same name (e.g., Audit, Documents, Process), and Vault Rights control access to InfoCards.

MasterControl recommends creating general roles. The general roles that MasterControl recommends be used in company installations are:

● **View Only and Anonymous** — Includes View Only, Trainees and Forms users

● **Reader** — Includes Readers, Basic Collaborators, Trainees and Forms users

● **Creator-Reviser** — Includes Creator-Reviser users, Collaboration Leaders, Course Managers, Trainers, Training Supervisors, Course Verifiers

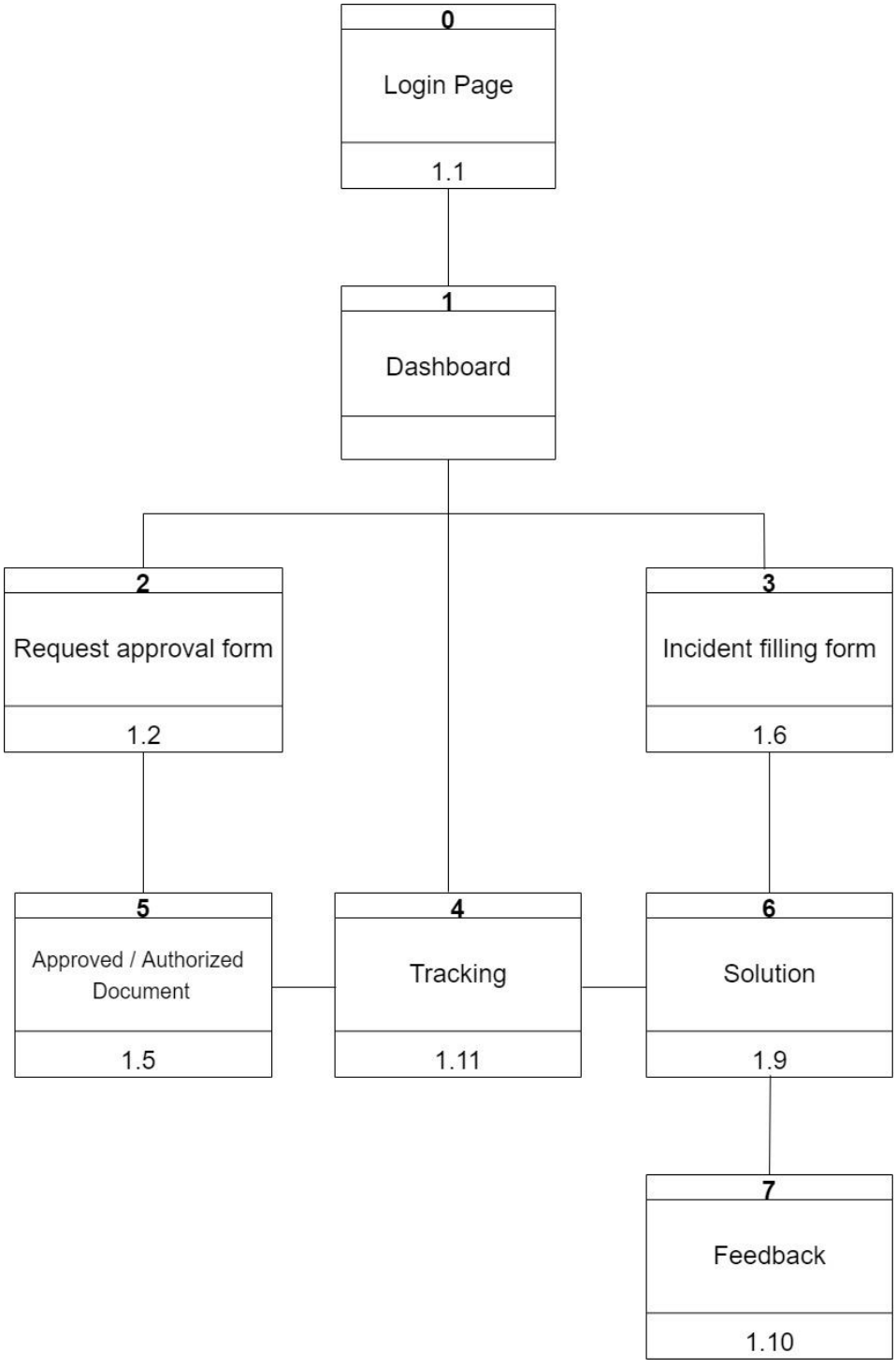
● **Subadmin** — Includes System Administrators, Subadmins, Training Coordinators, Forms Designers, Forms Builders.

A right granted to a reader role should also be assigned to the Creator-Reviser, and Sub Admin roles and a right assigned to a Creator-Reviser role should be given to Subadmins.

Recommended roles and rights are explained in further detail during the required Sysadmin Training at MasterControl Headquarters and during required On-Site Configuration by trained MasterControl Consultants or Trainers.

The person who triggers the document for approval will receive a feedback trigger after the issue has been resolved or once he gets approval from the concerned person. The feedback form will ask the person to give his/her overall experience with the approval process that he/she has initiated.

Dialogue Diagram



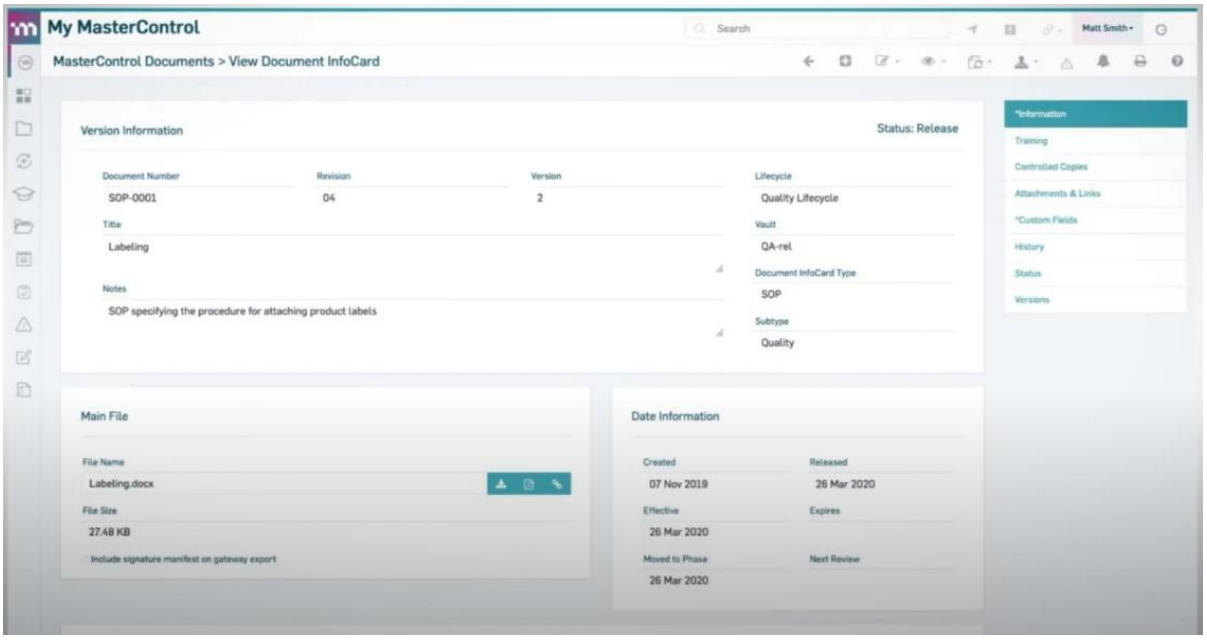
Dialogue diagram of the user interface

The above diagram figure shows the proposed system's front-end flow of the proposed system, i.e., Master Control. This Diagram shows what the user will encounter after each step.

At first, the user has to log in (Screen 0) into the master control system. After Logging in, the user will see a dashboard (Screen 1) where he can see his documents or incidents that are pending approval or solution; from there, he can either track (Screen 4) the progress of the current document/incident in his dashboard or can raise the new request of new document or Incident through Request approval form (Screen 4) or Incident filling a form (Screen 3) after which user can track the document through the dashboard once the solution (Screen 6) has arrived for incident user can send the feedback (Screen 7) to the concerned team. Also, if the document is approved by all the approvers and authorized by the manager user can view the authorized document (Screen 5).

Inputs and Outputs

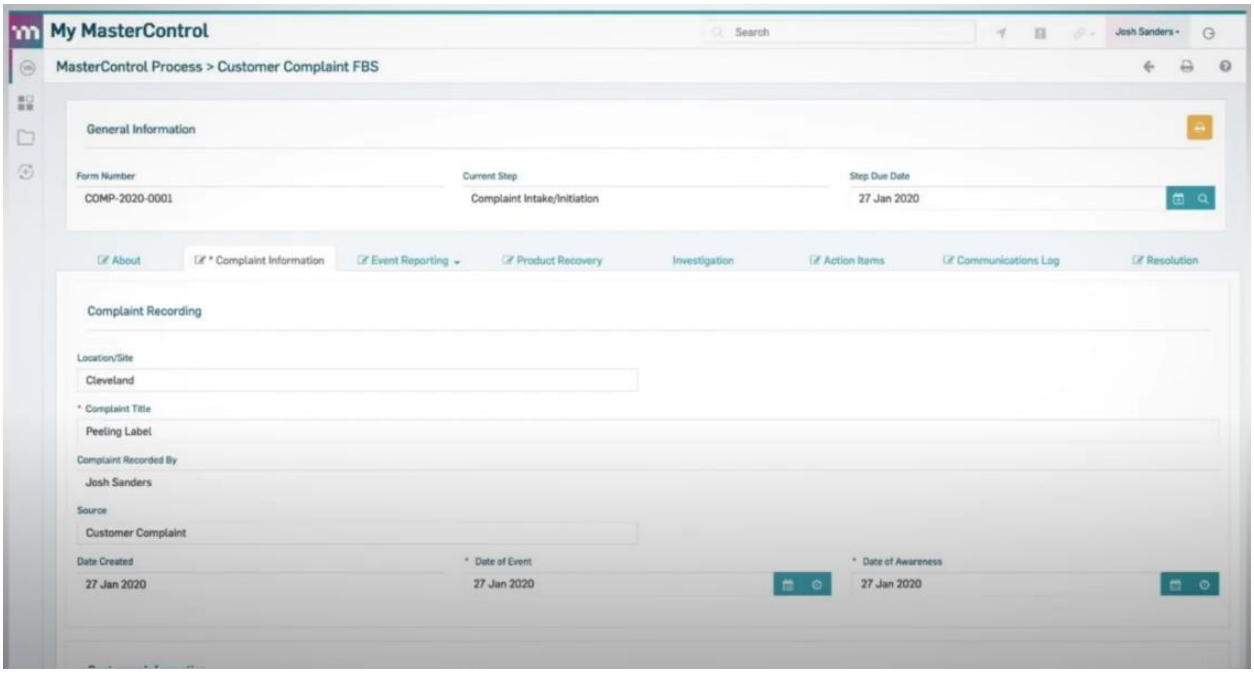
Input-1



Input-1: Document Creation

The initial input screen for the master control, document creation, is seen above. We are led to the master control's dashboard after completing the login process. Then, on the dashboard, select Master Control Documents to be redirected to the document creation page. We may use this to make a new document that needs to be authorized. Following the creation of the document, we must define the approvers, the document's name, and the material in the document that must be indicated for document approval. After completing the preceding steps, we must click the submit button. Following the submission, you will be taken to a page that displays the document's details, including the kind of document, the names of the approvers, the size of the document, the title of the document, the date information, and the document's status.

Input-2

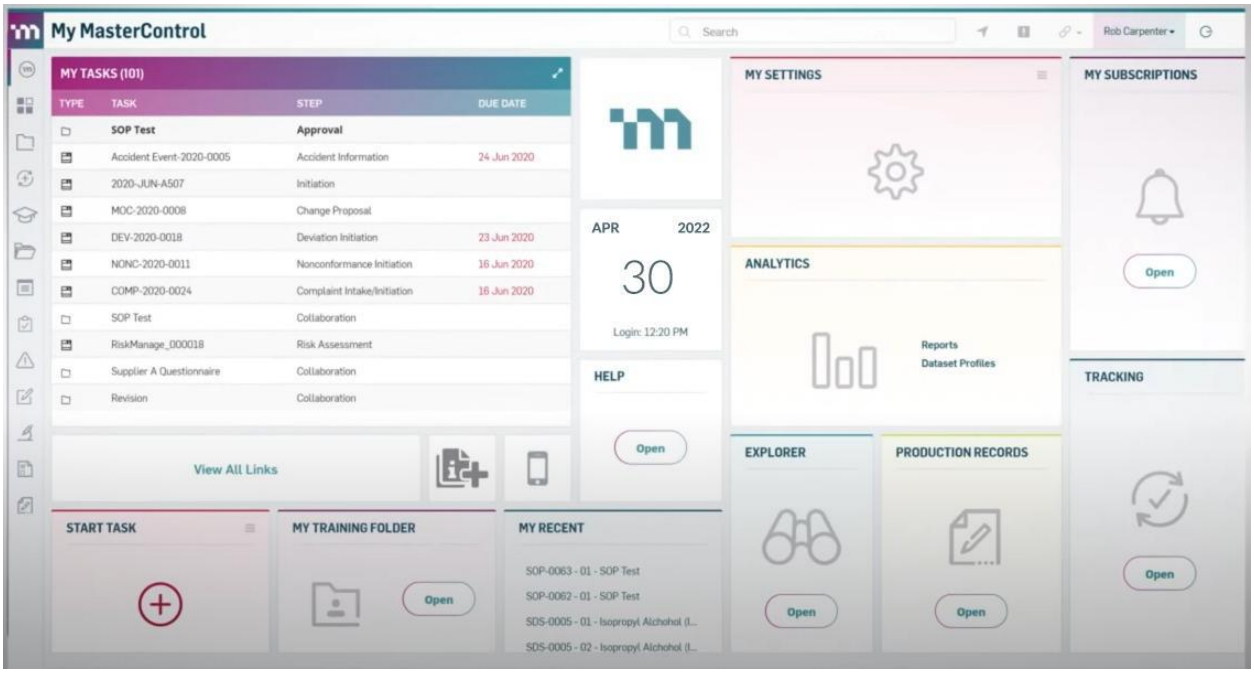


Input-2: Incident Creation

In master control, the input screen shown above is for incident creation. Selecting the option on the master control dashboard will take us to the incident creation page. The page then redirects to the incident creation page, where you should fill in information such as a description of the problem, the time and date the problem began, and the name of the employee who raised the issue before submitting the form. It redirects to a page that

displays the incident file created, including the form number, due date, creation date, event date, the status of the submitted form, title of the complaint, name of the person who registered the complaint, location, and source.

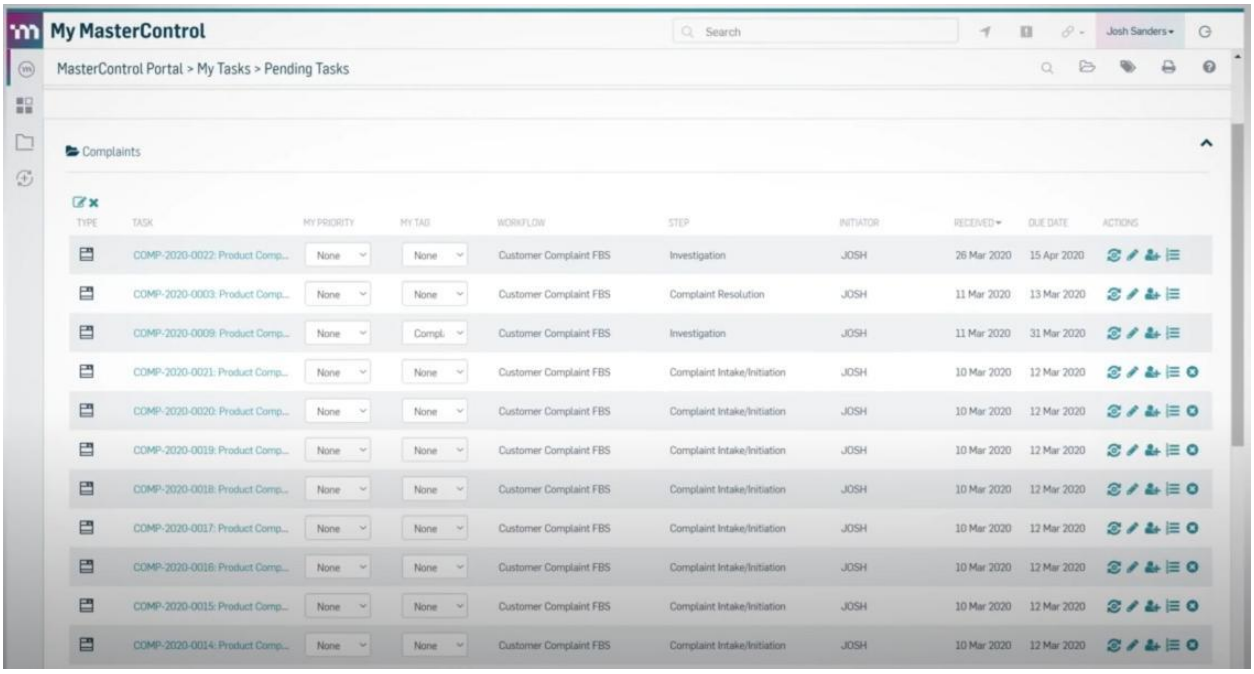
Output-1



Output-1: Document Tracking / Dashboard

This is the dashboard where we can see the document's status, such as whether it has been approved and authorized and the document's date, and the ability to filter documents by date, approver, and task. We can also create a document from this page and perform other things like configuring your profile, seeing analytics, and tracking other actions and recent activity**.**

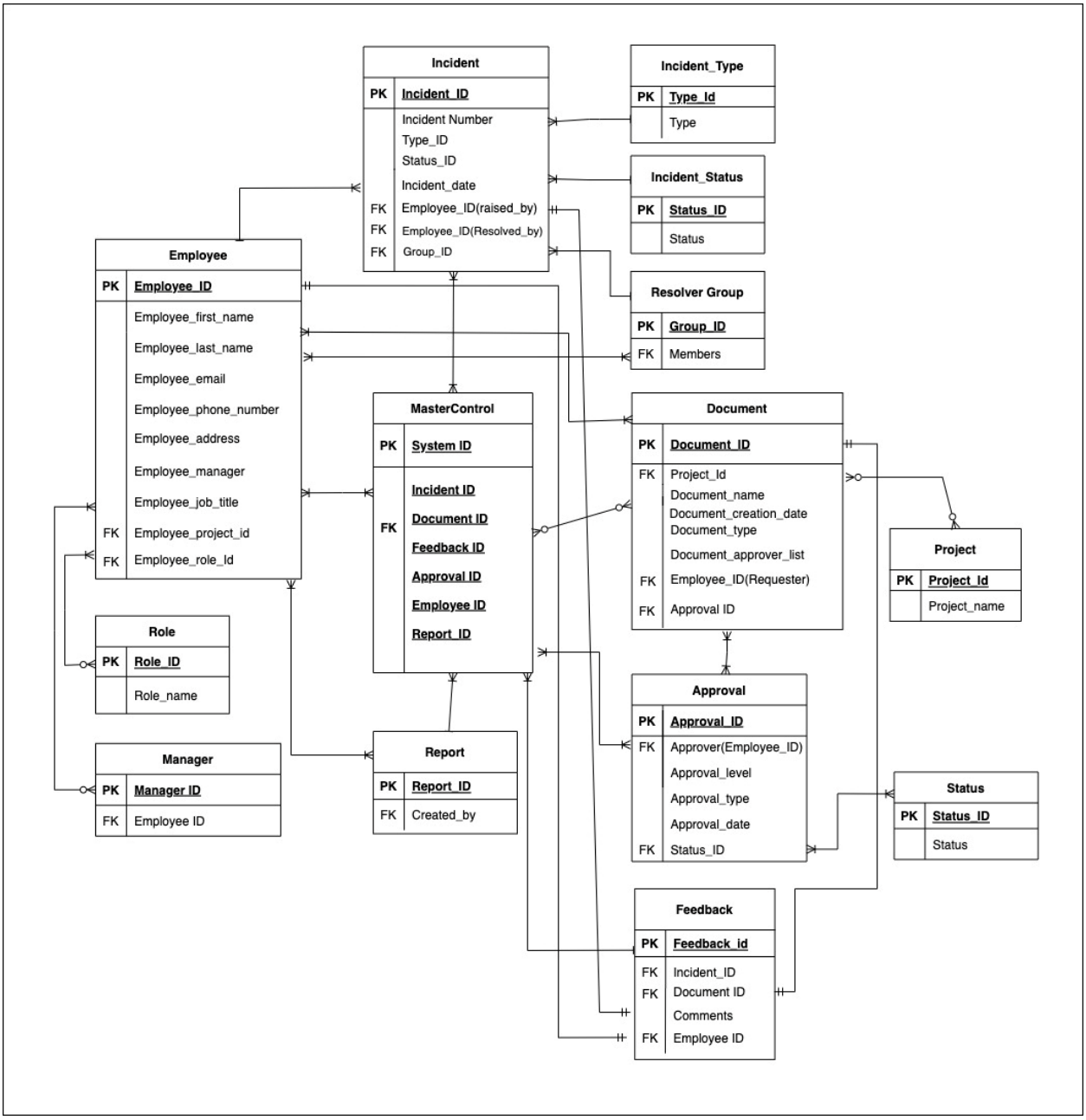
Output-2



Output-2: Incident Tracking / Dashboard

This is the output screen of incident management. Once an employee creates an incident, they may view the list of incidents in chronological order and filter them using criteria such as Task, priority, date, and status tracking. An employee can also change the incident's status based on the priority level (high, medium, or low). They can also make changes to the incident after it has been established, such as changing the job.

Entity Relation Diagram (ER)



The above diagram is a visual representation of different entities within a system and how they are related to each other**.**

In the above diagram, we have various entities such as Incident, Employee, Role, Manager, Report, MasterControl, Document, Approval, Feedback, Project, Status, and their relationship with one another.

The relationship between employees and incidents is one to many as employees can have many incidents. Each employee and incident have their own unique incident and employee id, which is the primary key for both of the tables. Apart from primary keys, these tables have their own set of attributes which can be referred to and used in other tables.

The employee has many to many relationships with roles as well as managers. An employee can have one or many roles, and these can be supervised by one or many managers.

Apart from these, the employee table has many to many relationships with Report, MasterControl, Document, and Resolver groups which means that many employees and vice versa can make reports and documents; an employee can make many reports and documents.

From the above graph, it can be easily inferred that MasterControl has relationships with all the other entities, and it has stored primary keys of all others as its own attribute (foreign key). It has its own unique primary key System Id. The MasterControl stores the id of all the incidents, feedback, employees, approvals, reports, and documents. This makes it easy to retrieve any data.

The incident tables hold the critical data of an incident, such as its type, status, and resolver group. All this detailed information can be retrieved via accessing the incident id, which is stored as the primary key in the incident table. This information is stored in separate tables and has its own unique key, which helps retrieve data of particular incidents.

The information about all the projects within an organization is stored in a document table which has many to many relationships with employees, and a MasterControl table, as one employee can store information about many projects and vice versa.

The feedback table stores the comments on the solution from the employees. It has a one-to-one relationship with the incident table as one incident will have only one

stored feedback. And it has the same one-to-one relationship with the employee table as one employee can only give feedback once on any specific solution. The feedback is related to document tables as one specific document will have one feedback stored, which is from the approvers regarding the document and its request for approval.

Moreover, the document table has many to many relationships with the project table as one project can or cannot have any documents. The document table stores the information about the creation of the document, its name, type, and approver list.

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