



Structured System Analysis and Design

Project Name: E-Forms Tracking and Incident Management System

Deliverable 2: The As-Is Model

Group 3

Contents

Data Modeling	3
Entity-Relationship Diagram	3
Data Flow Modeling	5
Data Flow Diagrams	5
Context Level Diagram	5
Level 0 Data Flow Diagram	6
Level 1 Data flow diagram	7
Physical Child Diagram - Incident Management System	7
Physical Child Diagram - Document Management	8
Data Dictionary	9
Review Report	14
Planning the walkthrough	15
References	16

Data Modeling

Entity-Relationship Diagram

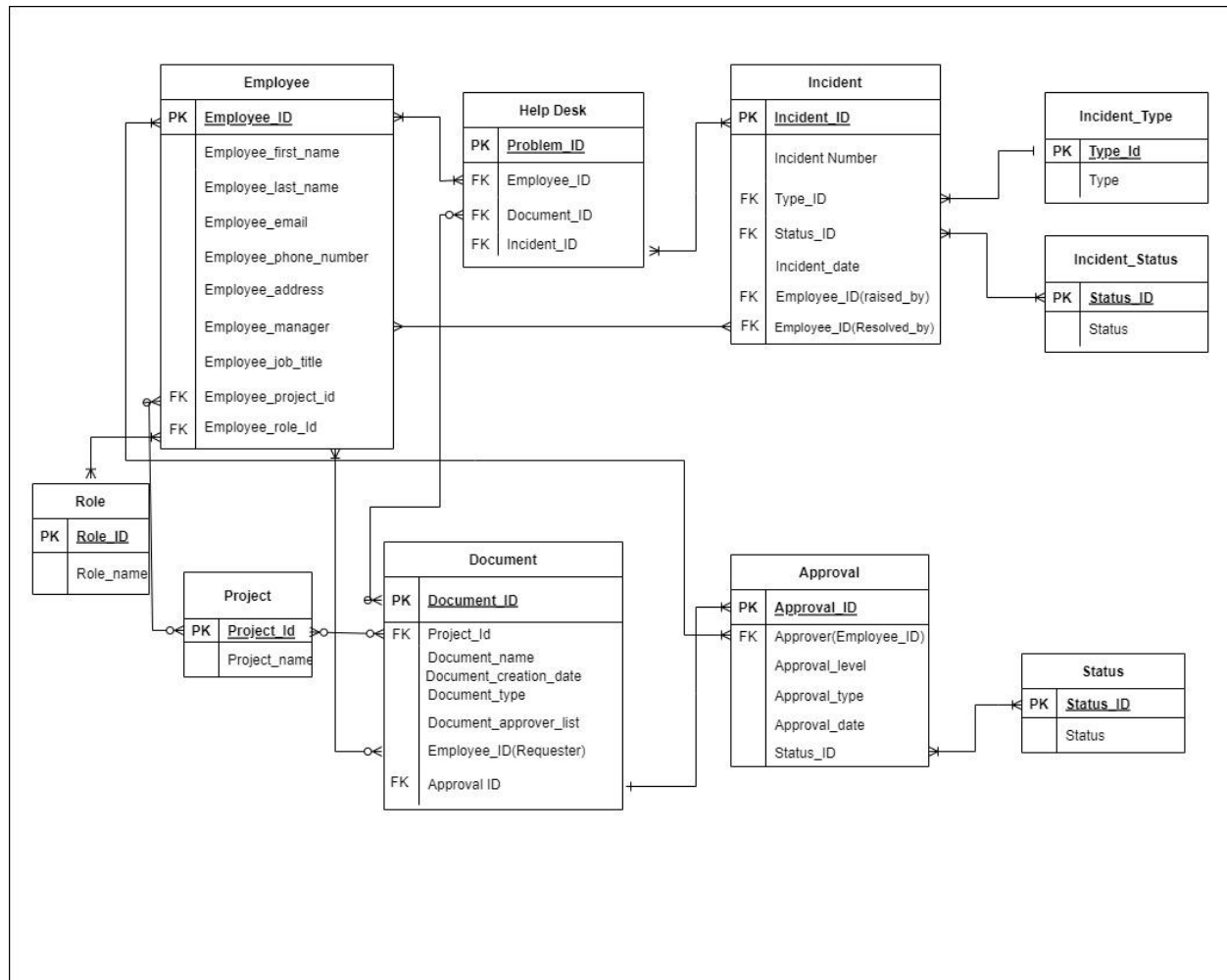
ERD Description:

The entity Relationship Diagram was created to examine the present system in which the organization's data is stored. It includes many entities from the organization, each of which has characteristics that describe the data element of that object.

The following entities exist in the organization and are either people, locations, events, or objects that a system maintains track of -

Employee data contains contact information, personal information, duties, and project specifics for which the employee is responsible. The same information may be utilized for incident and document management. Employees are calling the help desk for assistance with their problems. Employee id, document id, and incident id are all part of the help desk entity. The Help Desk then creates an incident on the employee's behalf. The event entity contains many sorts of occurrences that commonly occur in the sector, as well as their current condition. It contains the incident Id as the primary key, as well as the incident number, type id, status id, incident date, and who raised and resolved the event. The status entity contains all of the incident's conceivable statuses, such as pending with the employee for further information or awaiting third-party action.

The employee entity, on the other hand, is linked to the document entity. Document ID, Project id, document name, document type, document creation date, document approval list, approval id, and employee id are all included in the document entity. The project entity contains the project id, name, and other project-related information. Following the submission of various papers, they will be approved by the project or document's designated approvers. There is an approval id, an employee id who may approve it, an approval level, an approval type, an approval date, and a status id for the approval entity. The status object contains all of the document's available statuses.

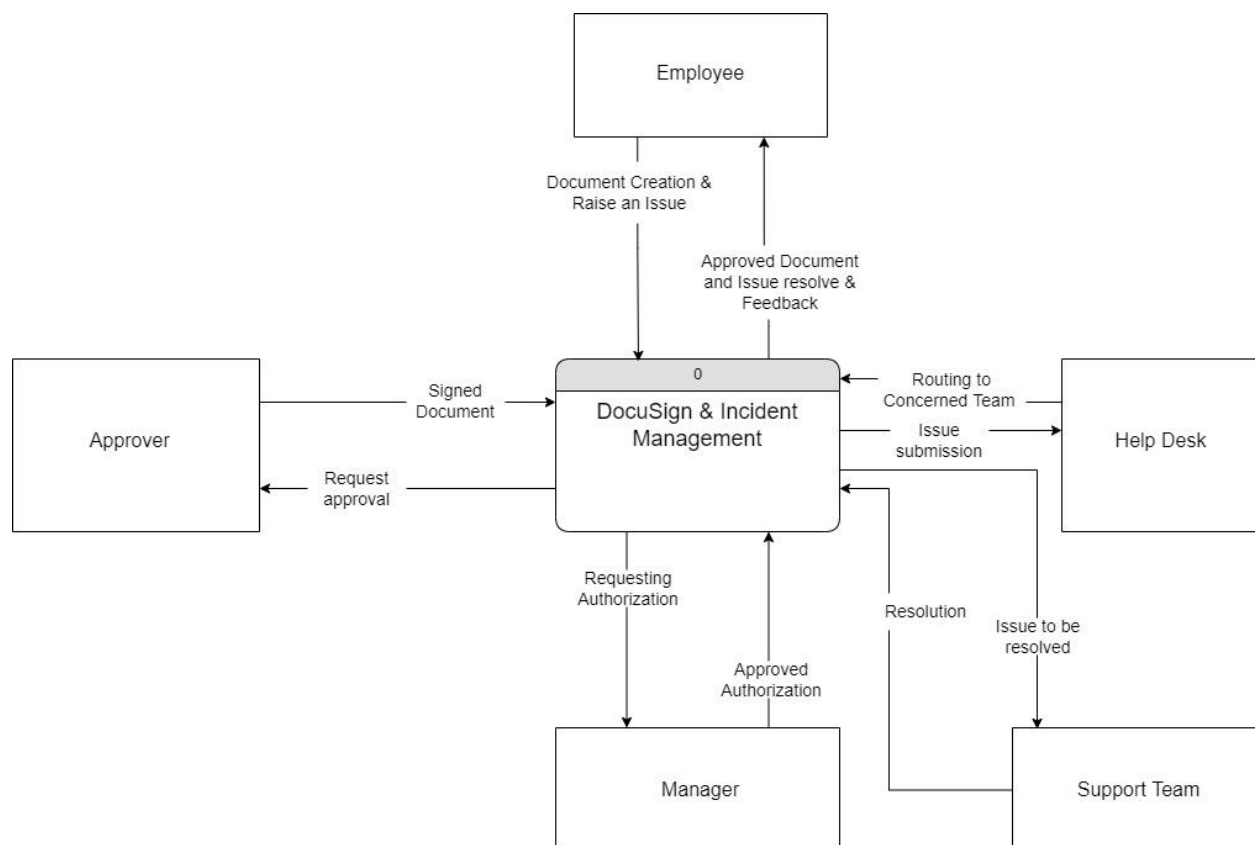


Data Flow Modeling

Data Flow Diagrams

Data flow diagrams show how information moves between processes and data stores. The organization Catalent's existing DFDs for document approval and incident management are shown below, with their information flow clearly illustrated in the diagrams.

Context Level Diagram

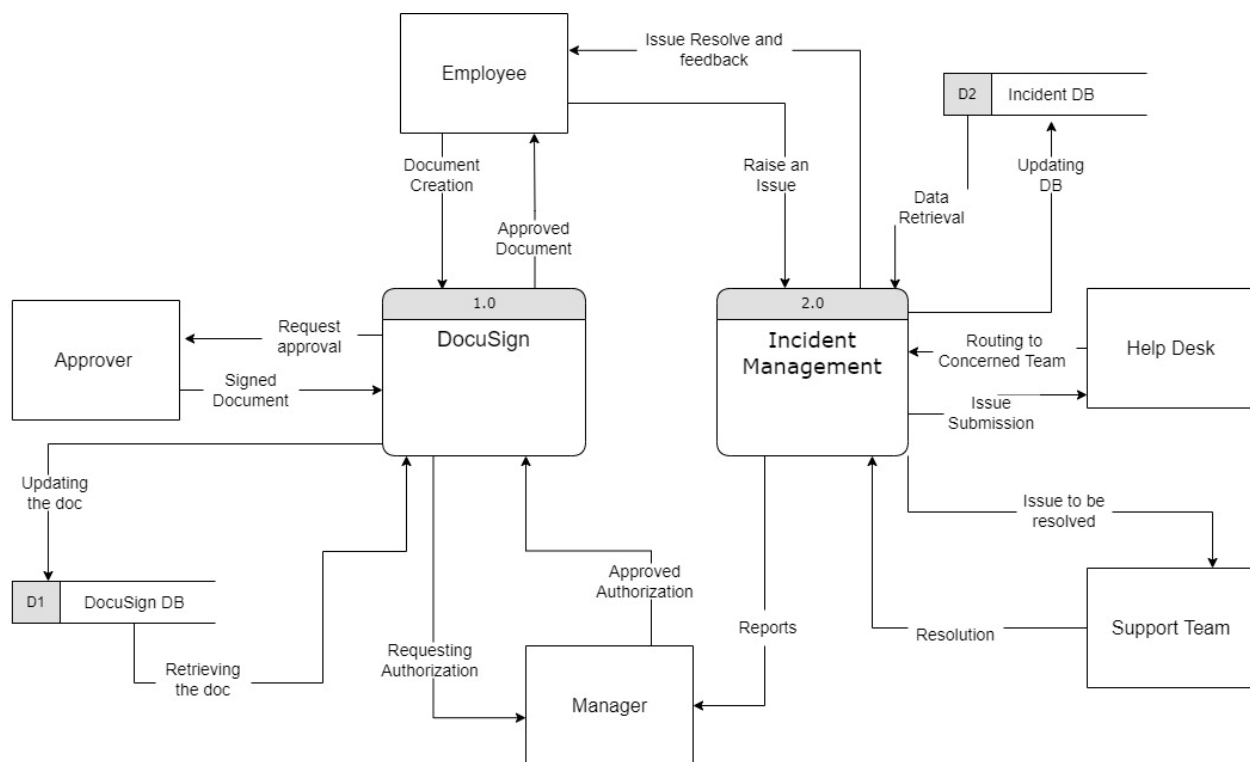


DocuSign and incident management systems, as indicated in the diagram, is the system's essential process. The systems link the manager, help desk, and support team to the employee who wants document approval and has a problem that has to be fixed. Employees, Managers, Helpdesk, and Support teams are all external entities in this data flow diagram. Between them, there are several data flows. Process 0 to the employee and employee to the process 0, process

0 to the helpdesk, helpdesk to process 0, process 0 to the support team, support team to process 0, process 0 to the manager, and process 0 to the approver are the most critical data flows.

Level 0 Data Flow Diagram

The level 0 diagram extends the context level diagram's depth to better understand the underlying processes and data flows. We specify the data stores for the system in this level 0 diagram, which aids in retrieving and updating data in the database.



DocuSign and Incident management has been divided into two key sub-processes in the Level 0 diagram.

- DocuSign (Process 1.0)
- Incident Management (Process 2.0)

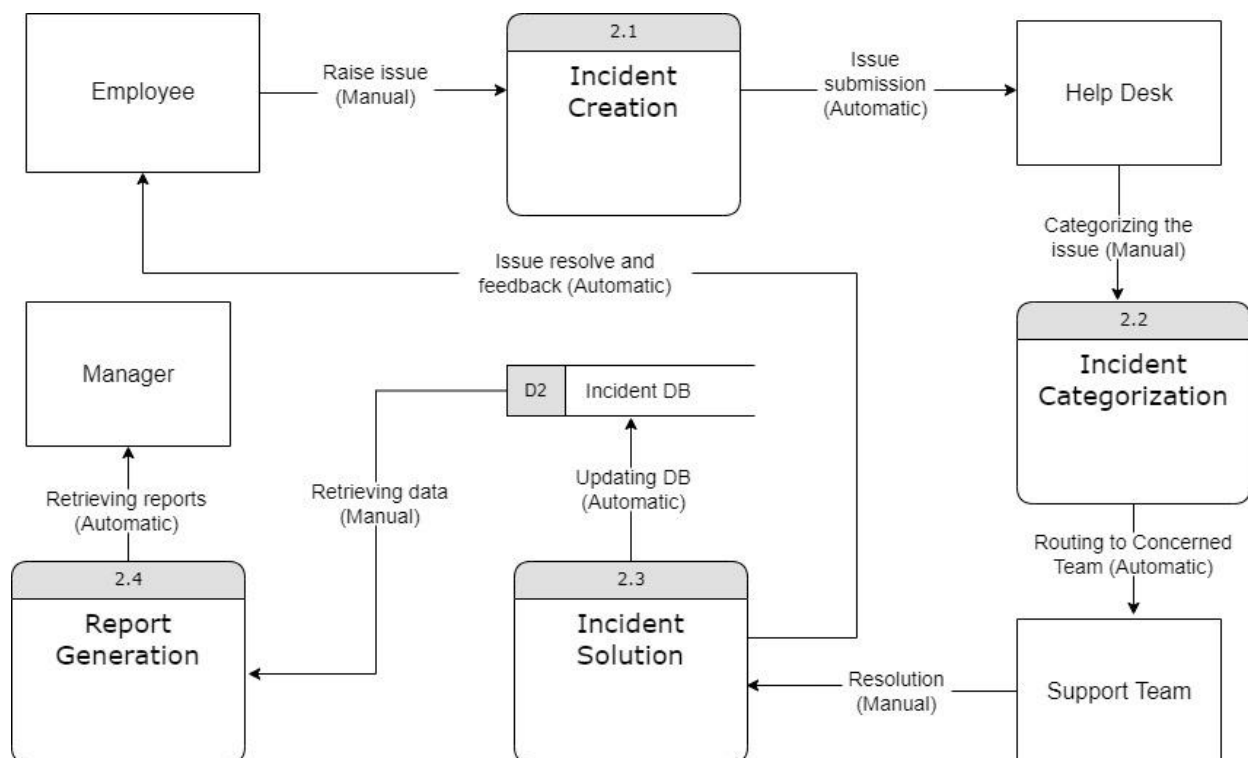
Each process has data stores that will be utilized to retrieve and update data from and into the database to complete each task. D1 DocuSign DB is the data store for process 1.0, while D2 Incident DB is the data store for process 2.0.

Process 1.0 - DocuSign assists employees in creating and routing documents for approval to the appropriate approver. Following the approver signing the document, it is re-routed to the manager for document authorization, and after completion of the authorization, it is sent to the employee who requested the approval. Process 1.0 uses the D1 data storage to retrieve the document and update it on the DocuSign DB after each data flow.

Process 2.0 - Incident Management assists employees in reporting a problem (issue), which is then forwarded to the helpdesk. The help desk re-routes the issue to the appropriate support team for resolution through the process. The support staff handles the issue, and the details of the solution are communicated to the employee, along with a feedback form to obtain the employee's comment on the problem's resolution. Process 2.0 saves and retrieves information about the issue raised using D2 data storage.

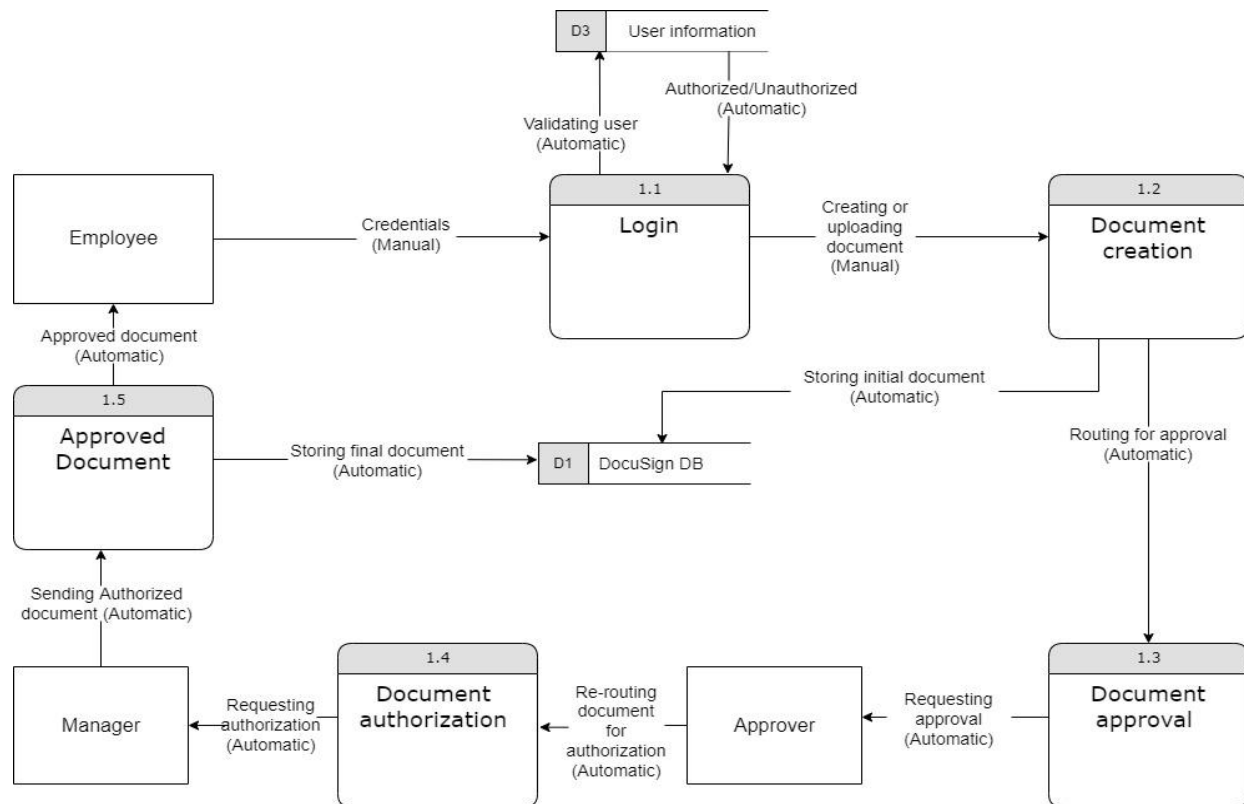
Level 1 Data flow diagram

Physical Child Diagram - Incident Management System



In this diagram, we have shown the decomposition of process 2.0, i.e., Incident Management. We have divided process 2.0 into four parts, Incident Creation, Incident Categorization, Incident Solution, and Report Generation. First, the First Employee raises the Incident, which will be a manual process then Incident created it automatically goes to the helpdesk, the team that analyzes the Incident and categorizes the Incident. Then it is sent to the Concern team that provides the solution and routes the solution and feedback back to the employee. The manager uses process 2.4 for the creation of reports (Weekly Status Reports or Monthly Status Reports). All the process uses only one data storage, i.e., D1, for their process to be completed.

Physical Child Diagram - Document Management



The decomposition of process 1.0, Document management, is depicted in this diagram. Login, Document creation, Document approval, Document authorization, and Approved Document are the five parts of process 1.0.

Employee logs into the DocuSign portal, which directs them to the document creation page based on data storage authorization (D3). The document will be automatically saved in the data storage once it has been created (D1). Then it passes through the approval process with the other employees (approver), followed by the manager's authorization. The employee receives the final approved document, which is saved in the data storage system (D1).

Data Dictionary

Data Dictionary:

Definition
<p>Name: Employee Type: Entity Description: Employee entity is a place where details of employees are available. Synonyms: staff member What it Contained In: Information about employees (requester, approval, ...) What it Contain: Help Desk, Document, Role Constraints: None</p>
<p>Name: Help Desk Type: Entity Description: It is a place where all issues are addressed and resolved or assigned. Synonyms: Help Line What it Contained In: Problem_ID, Document_ID, Incident_ID What it Contain: Employee Constraints: None</p>
<p>Name: Incident Type: Entity Description: It is a place where all the details of any incident occurred in industry Synonyms: Circumstance What it Contained In: Incident_ID, Type_ID, Status_ID What it Contain: Help Desk, Resolution, Incident_Type, Incident_Status, Raised_by,</p>

Resolved_by Constraints: None
Name: Incident Type Type: Entity Description: It is a place where Type of incident occurred Synonyms: n/a What it Contained In: Type_ID What it Contain: n/a Constraints: None
Name: Incident Status Type: Entity Description: It is a place where the status of the incident is known Synonyms: n/a What it Contained In: Status_ID What it Contain: n/a Constraints: None
Name: Roles Type: Entity Description: It is a place where roles of the employees is found Synonyms: Part What it Contained In: Role_ID What it Contain: N/a Constraint: One-to-One Relation.
Name: Document Type: Entity Description: It is a place where the details of the employees is found Synonyms: Certificate What it Contained In: Document_ID, Project_Id, Document_name, Document_type What it Contain: Employee, DocuSign Database Constraints: None
Name: Approval Type: Entity Description: It is a place where status of the approved employee is shown Synonyms: Consent What it Contained In: Approval_ID, Employee_ID, Status_ID What it Contain: Document Constraints: None
Name: DocuSign Type: Entity Description: It is a place where the detail of the document is known Synonyms: n/a

What it Contained In: Document_ID, Project_ID, Document_name
What it Contain: n/a
Constraints: None

Data Flow Diagram Dictionary

Definition

Name: DocuSign DB

Type: data store

Description: It contains all the information about the created and approved documents of the organization.

Synonyms: None

What it contains

Data Elements

Document_Id

Project_Id

Document_name

Document_type

Document_creation_date

Document_approver_list

Approval_ID

Requester

What it is contained in: n/a

Constraint: Form is a database table

Name: Incident DB

Type: data store

Description: It contains all the information about the incident raised and its resolution

Synonyms: None

What it contains

 Data Elements

 Raised_by

 Resolved_by

 Incident_Id

 Type_Id

 Incident_date

 Status_ID

What it is contained in: n/a

Constraint: Form is a database table

Name: User Information

Type: data store

Description: It contains DocuSign user information of the organization.

Synonyms: None

What it contains

 Data Elements

 Email

 Name

 Password

What it is contained in: n/a

Constraint: Form is a database table

Name: Issue Submission

Type: data flow

Description: It contains do information about the issue reported

Synonyms: none

What it contains

 Data Elements

 Problem_ID

 Employee_ID

 Incident_ID

 Low-level data flows

 Routing to Concern Team

What is contained in: None

Source: Process 2.0

Destination: Helpdesk

Name: Raise an Issue

Type: data flow

Description: Information about the problem reported.

Synonyms: none

What it contains

 Data Elements

 Incident_Id

 Type_Id

 Incident_Date

 Status_ID

 Low-level data flows

 Issue Submission

What is contained in: None

Source: Employees,

Destination: Process 2.0

Name: Request Approval

Type: data flow

Description: It contains documents, approver and requester names.

Synonyms: none

What it contains

 Data Elements

 Document_Id

 Project_Id

 Document_Name

 Employee_ID (Requester)

 Employee_ID(Approver)

 Low-level data flows

 Approved Document

What is contained in: None

Source: Process 1.0

Destination: Approver

Review Report

We had two hours brainstorming meeting on 3/17/2022. We talked about Catalent's processes. Then we divided tasks between the group members. The below tables show the assigned tasks.

The main concern we had was about DFD level 1. We were thinking about how the manager will get the report about the incident to mention in WSR (Weekly Status Report) and MSR (Monthly Status Report), then Sravan gave the idea to add the process of Report Generation which manager can access and that use Incident DB as its data storage.

The other concern we faced was who authenticated the document when Sai Vineet gave the idea of adding a manager in DocuSign DFD in order to keep the authenticity of documents.

Planning the walkthrough

Reviewer	Role	Document
Pravin	responsible for the ER diagram and dictionary, review report	Deliverable 2
Navneeth	responsible for the ER diagram and dictionary	Deliverable 2
Atefeh	responsible for the ER diagram and dictionary, edit the report	Deliverable 2
Sudhanshu	responsible for DFD and dictionary	Deliverable 2
Sai	responsible for DFD and dictionary	Deliverable 2
Sravan	responsible for DFD and dictionary	Deliverable 2
Shikha	responsible for DFD and dictionary	Deliverable 2
Sushmitha	responsible for DFD and dictionary	Deliverable 2

References

Dr. Rand Lecture slides