



Project 1 – Part 1

“Academic integrity is expected of all students of METU at all times, whether in the presence or absence of members of the faculty. Understanding this, I declare that I shall not give, use, or receive unauthorized aid in this study.”

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Introduction

Information systems are used to optimize data flow between entities in a certain system. In this sense they are used in disaster response, when data amounts are gigantic, and time and coordination are of the essence.

S.O.S. is a voluntary disaster relief supply initiative that needs to design an information system in order to meet disaster victims' needs either by purchasing items from their budget or through donations.

Information System

The proposed modules that make up the Information System are:

- Requests Module:
 - *This module handles collecting requests from the victims and categorizing them according to the victims' needs.*
 - *This module also collects information from the victims that S.O.S. could use to provide help more efficiently.*
- Donations Module:
 - *This module is an interface for people to donate monetary or physical supplies (physical supplies include: Shelter, hygiene, food, clothing, and medical supplies).*
 - *This module also handles collecting payment and transaction details of the donors and saves their information.*
 - *This module also can display the specific requests of victims and give the donors the chance to fulfill a specific request. Should the donor choose to give a general request, this module is also capable of showing the most in-demand supply needed by the victims.*
- Financial Module:
 - *This module monitors the financial side of the IS. This includes all cashflows and all the buying and selling S.O.S. does.*
 - *This module is mainly monitored by accountants whom also work to generate crucial financial documents and manage S.O.S.'s taxes (if any).*
- Feedback Module:
 - *This module handles and collects feedbacks from victims and analyzes it to make sure S.O.S. is providing top-tier service and ensuring utmost quality.*
 - *This module is mainly monitored by feedback analysts and by data admins, whom also work on generating reports from the data collected and stored in the organization's database.*
- Inventory and Logistics Module:
 - *This module handles inventory-related issues and also handles the logistics of S.O.S. This includes scheduling and collecting shipments from both suppliers and donors, as well as shipping out relief supplies to victims.*

The relation embedded between each module can be visualized in figure 1, followed by the use-case diagram of the IS in figure 2:

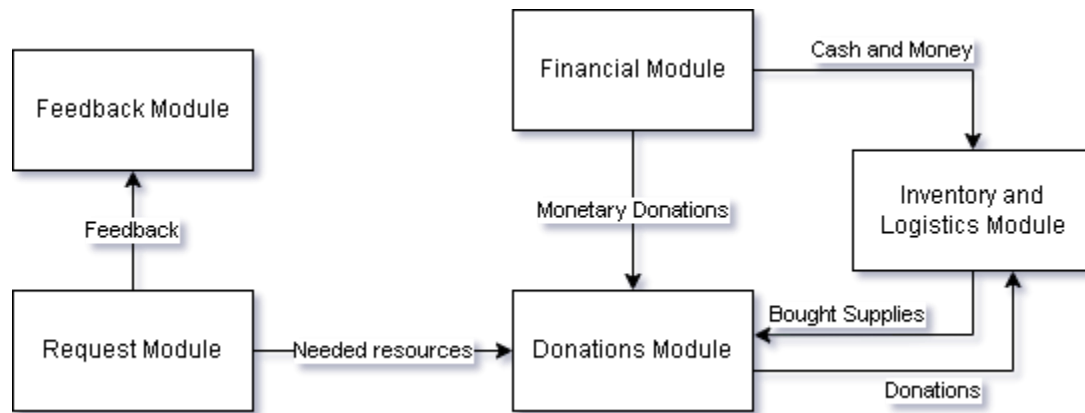


Diagram 1: Relationship diagram between the modules.



Diagram 2: Use-case diagram of S.O.S.'s Information System.

Requests Module

“As a victim, I want to be able to specify my needs and requests. I want to be able to give out specific requests and/or general ones, whether my requests include monetary donations or physical relief supplies.”

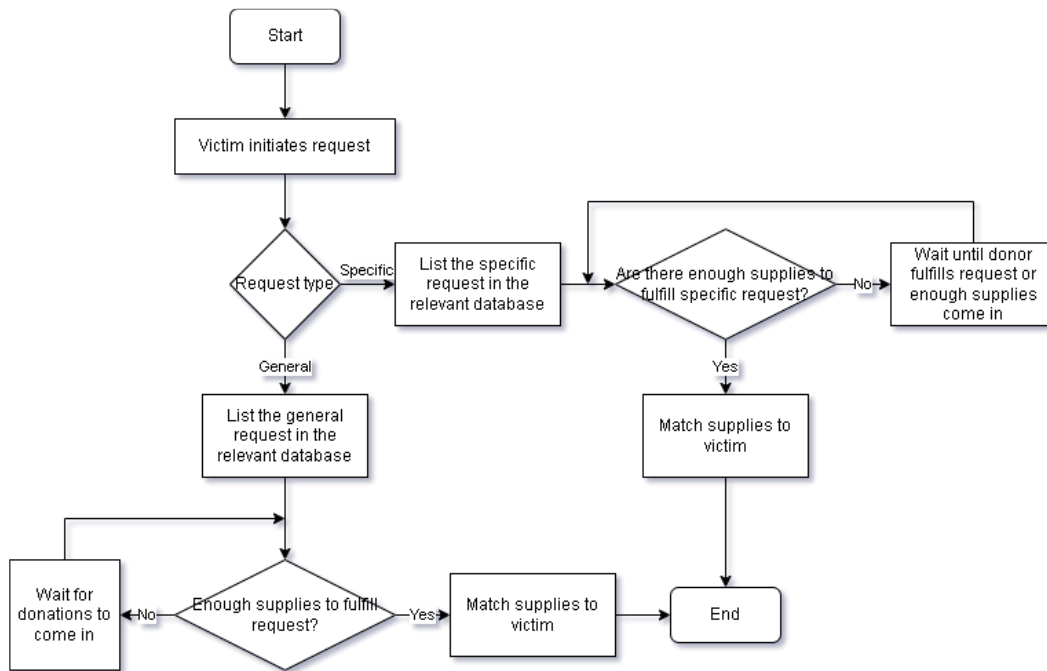


Diagram 3: Business flow diagram of the request's module.

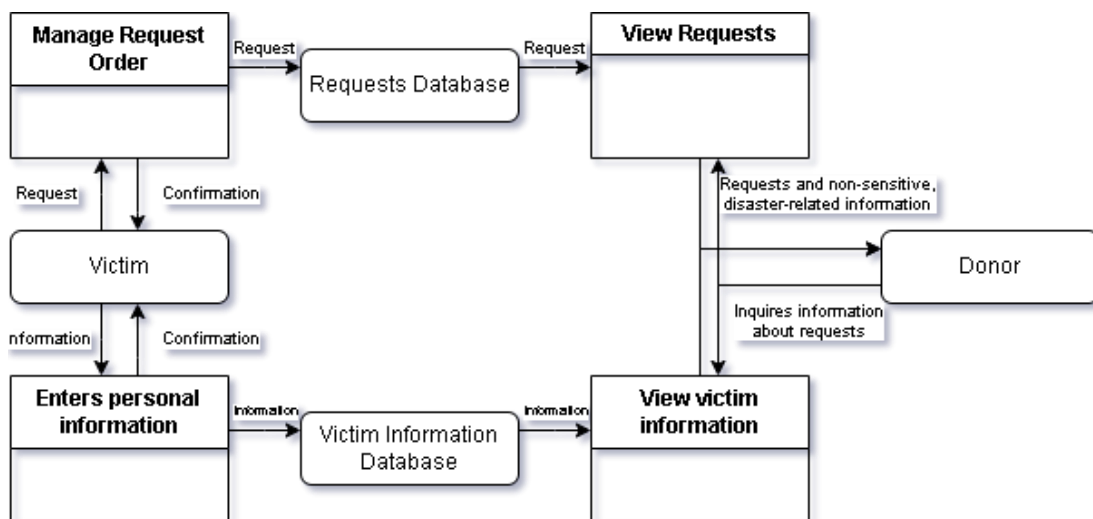


Diagram 4: Data flow diagram of the request's module.

- **Note:** Non-sensitive information that is related to the disaster includes: number of children (who may or may not be affected), marital status, etc. since a person is more likely to help a person if they have children whom rely on the victim to live.
- **Note:** Confirmation refers to the IS confirming to the victim that their request and information have been successfully submitted and sent out to S.O.S.'s databases.

Donations Module

“As a donor, I want to be able to donate to be as effective as possible. As such, I would like to see the resources that the organization is lacking on and help fill any gap. In addition, I would like this process to be as smooth as possible. As such, if the organization could store my payment details so I could donate again with ease, I am more likely to donate again. In addition, if the organization would collect donations from my doorstep, I would be more likely to donate more.”

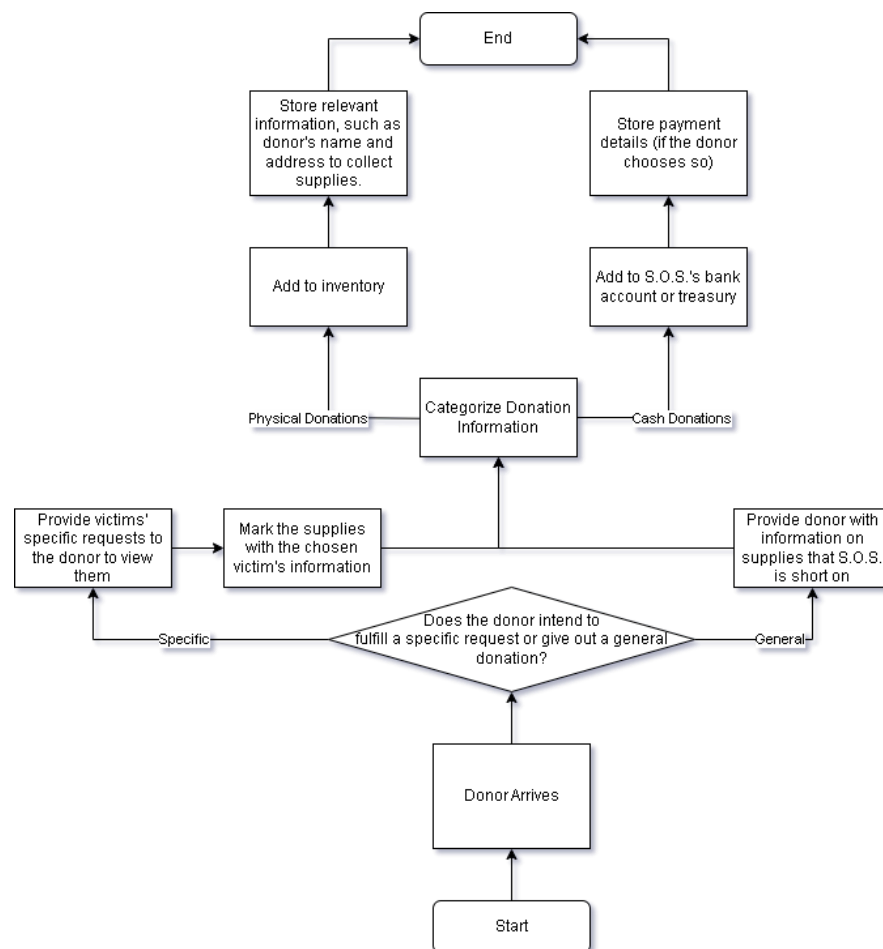


Diagram 5: Business flow diagram of the donation module.

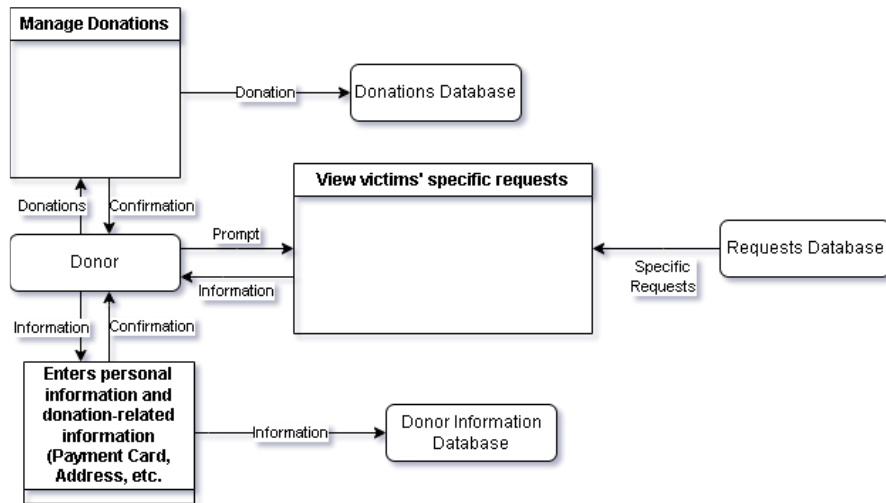


Diagram 6: Data flow diagram of the donation's module.

Financial Module

“As an accountant, I would like to manage the buying and selling done by S.O.S., as well as manage all the cashflows. I would also like to be able to generate all relevant financial documents in order to make sure the monetary donations are being spent well.”

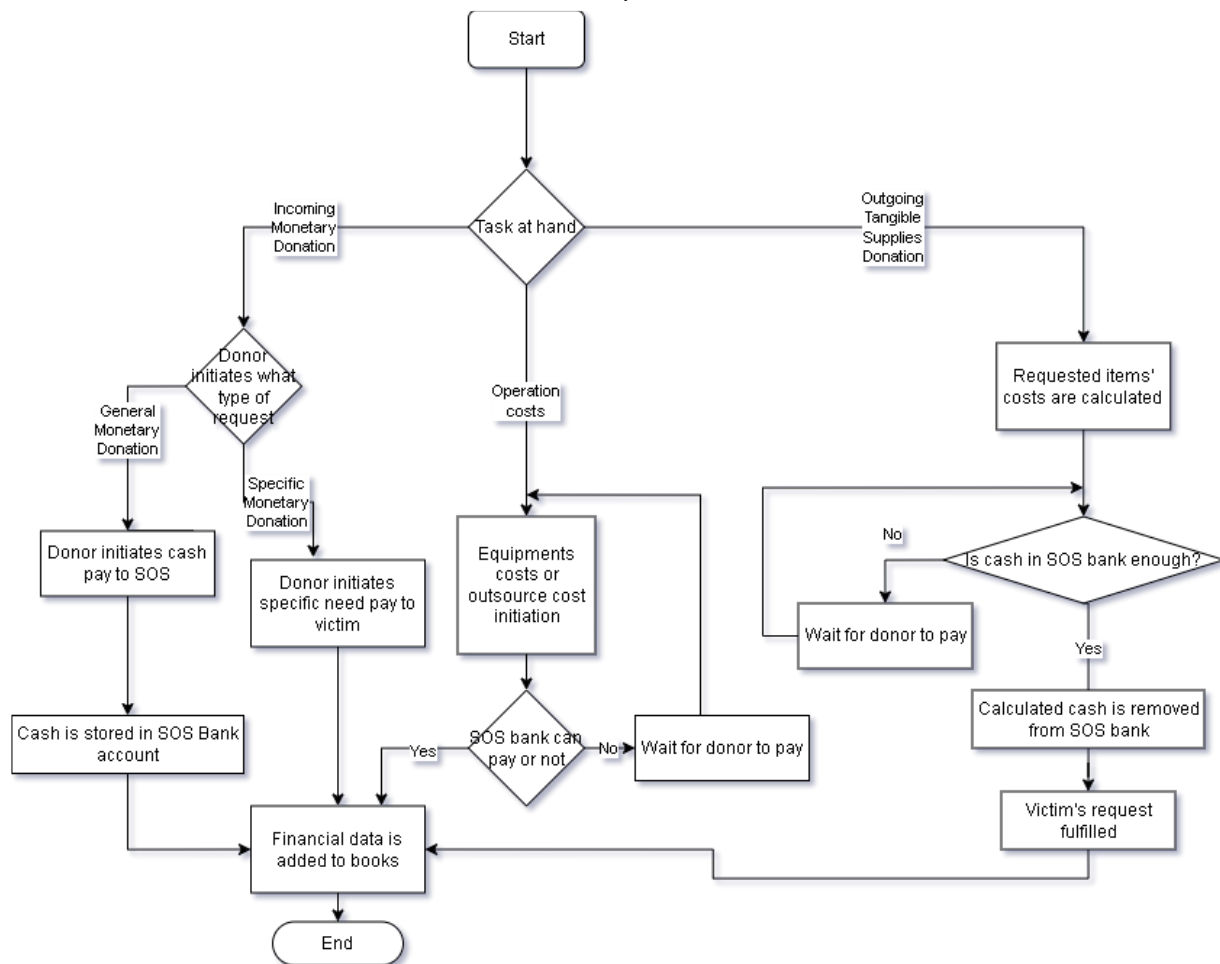


Diagram 7: Business flow diagram of the financial module.

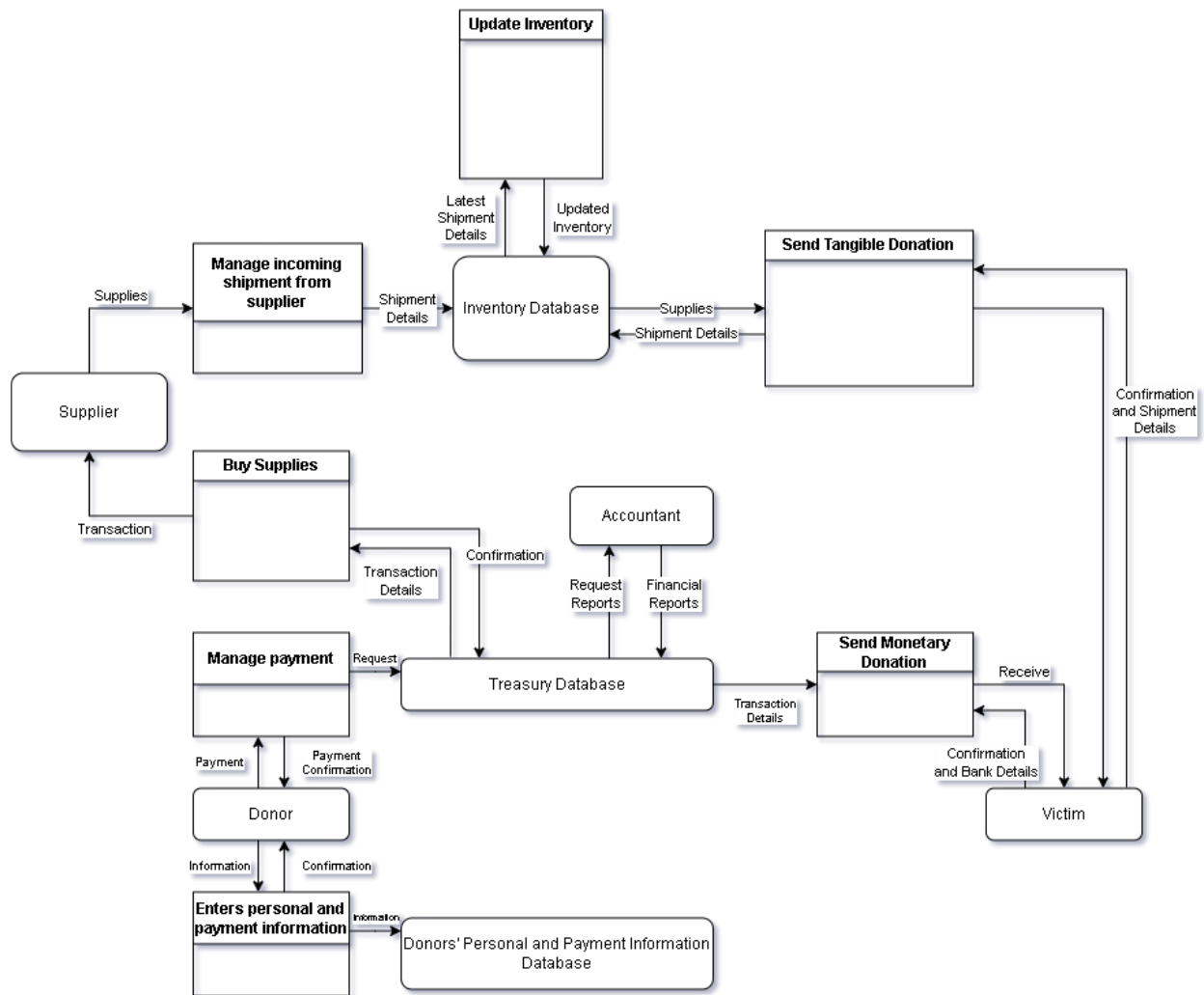


Diagram 8: Data flow diagram of the financial module.

- **Note:** “Information about the victim’s bank details” could also be exchanged for the closest branch of PTT, for example, to the victim that could deliver the money, in cash.
- **Note:** the donor can choose to opt out of having their payment details saved.
- **Note:** the accountants or any relevant personnel must authorize any money that is being sent out of S.O.S.’s treasury and/or bank account(s), as well as authorize the buying of supplies.

Feedback Module

“As a victim, I would like to voice my feedback to S.O.S. to either emphasize a good experience or complain about a bad aspect. Either way, this might help improve the relief service for the victim that will be aided after me.”

“As a data admin, I would like to be able to easily create reports and documents that can help me create performance reports as easily as possible.”

“As a feedback analyst, I would like to be able to pair feedbacks with relevant data that can enable me to discover patterns and allow S.O.S. to fill any gaps in our service.”

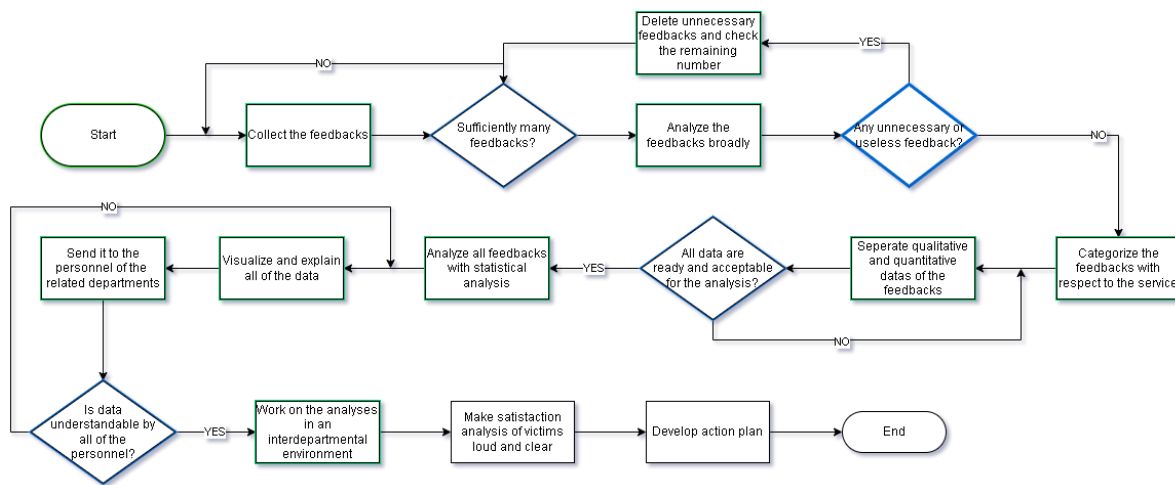


Diagram 9: Business flow diagram of the feedback module.

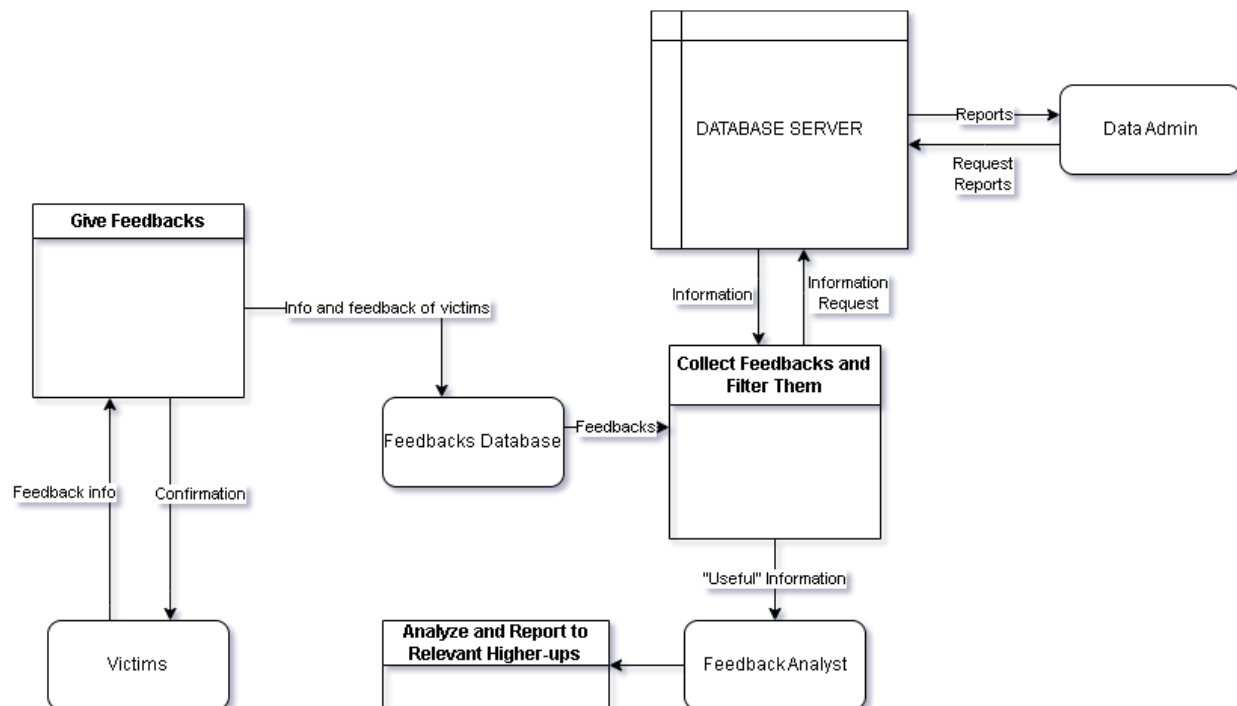


Diagram 10: Data flow diagram of the feedback module.

- **Note:** The roles of the data admin are compressed in this module, since any performance reports will eventually lead to a better overall performance across S.O.S.
- **Note:** The feedbacks are paired with relevant information from the database server in order to make feedbacks better to analyze, i.e.: it may be relevant to pair feedbacks with the locations of victims in order to see whether the service has deteriorated in a certain location but not others.

Inventory and Logistics Module

“As an inventory and logistics worker, I would like to be able to manage the inventory as easily as possible and be able to manage outgoing and incoming supplies as easily as possible, in order to reduce redundancies.”

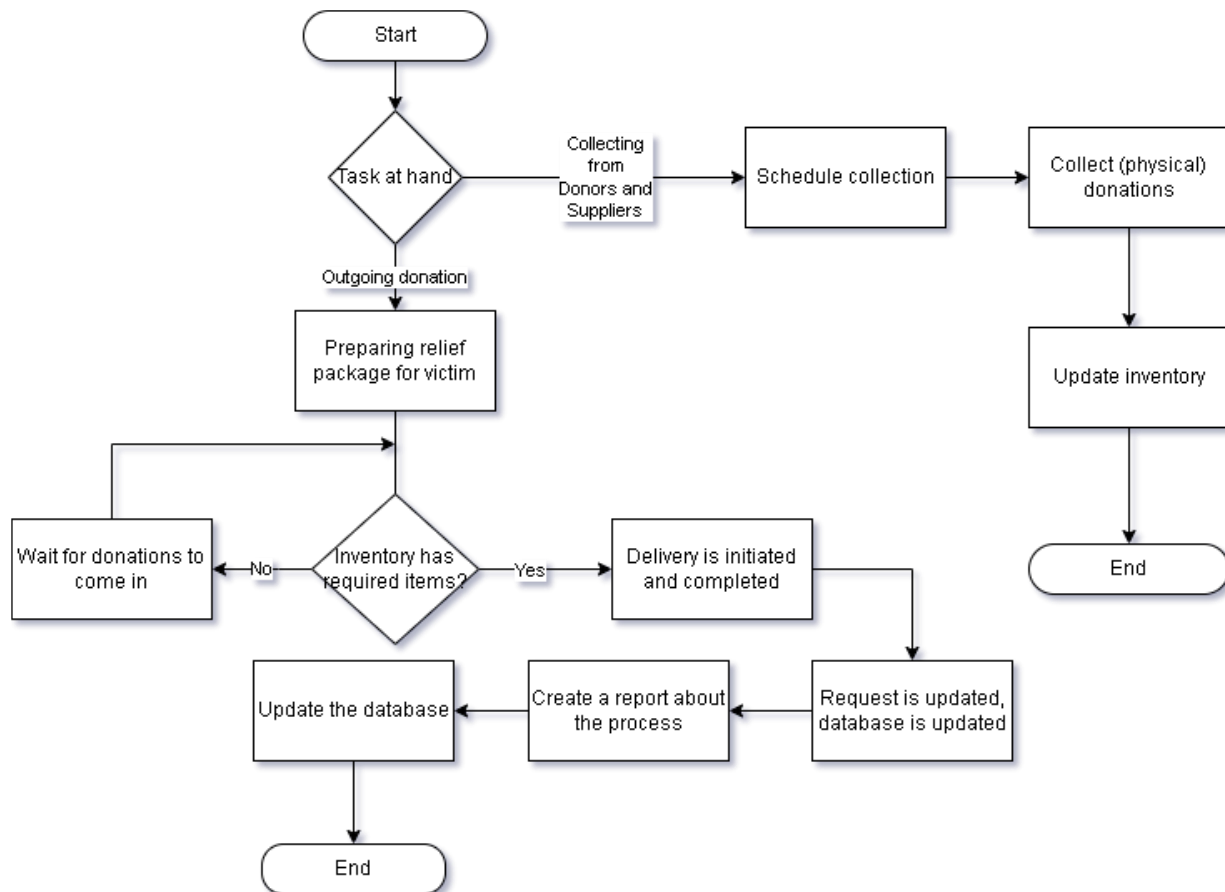


Diagram 11: Business flow diagram of the inventory and logistics module.

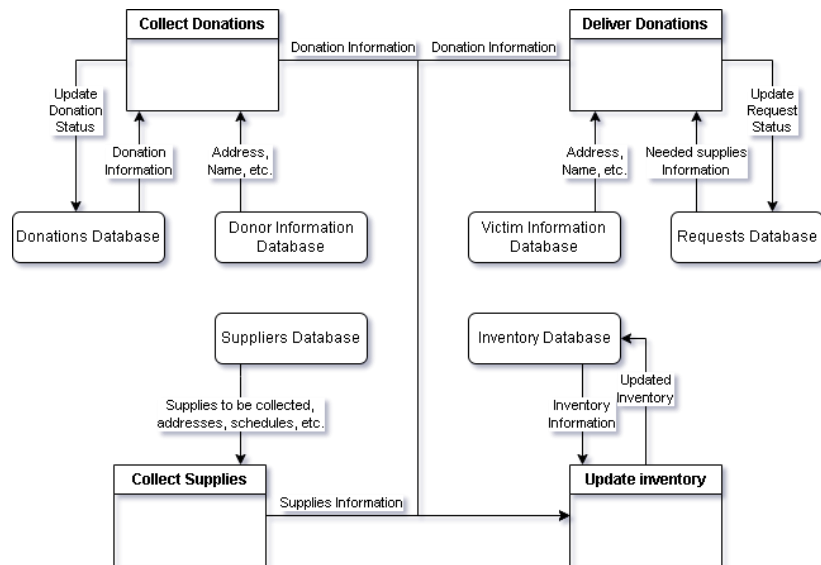


Diagram 12: Data flow diagram of the inventory and logistics module.

- **Note:** When scheduling supplies collections and supplies delivery are mentioned in the diagrams, the definition also includes outsourcing said activities.

Appendix

If the graphs are not clearly visible within this document, please use this link to view the graphs on *diagrams.net*: [Link](#)

If you would like to download the DRAWIO file instead, please use this link: [Link](#)