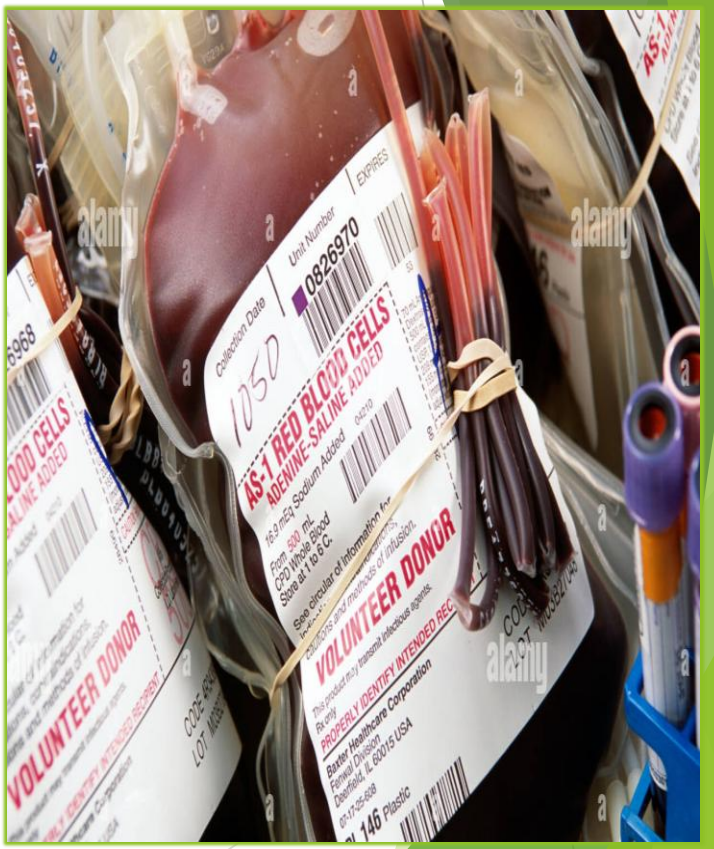
BLOOD BANK MANAGEMENT SYSTEM

-ANANLYSIS-

EXCEL | MYSQL |

POWER BI | POWERPOINT



OVERVIEW

INTRODUCTION

- A Blood Bank Management System is a digital platform designed to manage the collection, storage, and distribution of blood in an organized and efficient way.
- Blood is a very important resource in saving lives during surgeries, emergencies, and medical treatments.
- Managing blood donations, donor records, blood stock, and requests manually can lead to errors and delays.
- This system helps hospitals, blood banks, and donors by keeping all the information in one place and making sure the right blood is available at the right time.

Overview:

- The purpose of this project is to design and visualize a system that manages all the important activities of a blood bank using tools like Power BI. It helps to understand the trends in blood donation, blood availability, and demand patterns.

Purpose:

- To keep track of blood donors and their donation history.
- To manage blood inventory (available blood types and units).
- To help hospitals and patients request and receive blood quickly.
- To analyze blood donation trends by location, blood group, and donor type.

OBJECTIVES

The analysis and system design focuses on:

- Streamlining donor registration and blood collection processes.
- Maintaining an accurate and real-time inventory of blood units.
- Classifying and tracking blood types with expiry information.
- Improving coordination between donors, hospitals, and blood banks.
- Predicting demand patterns based on region and blood type.
- Reducing response time during emergencies through better data access.
- Ensuring safety and compliance with donation eligibility rules.
- Leveraging dashboards for transparent and data-driven decision-making.

BLOOD BANK MANAGEMENT SYSTEM

Request Status by Hospital Location

Average donor age

39.12

AverageDonorAge

BLOOD GROUPS

All

Total units available

416

Sum of Units Available

Avg unit per group

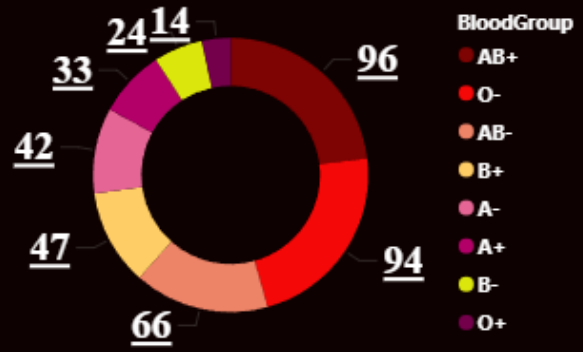
52.00

Sum of AvgUnitsPerGroup

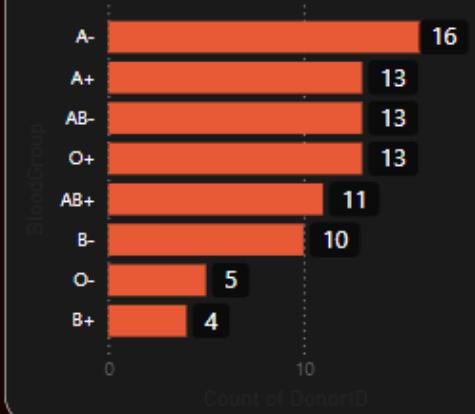
BloodGroup	Sum of TotalUnit
A-	42.00
A+	33.00
AB-	66.00
AB+	96.00
B-	24.00
B+	47.00
O-	94.00
O+	14.00
Total	416.00

Total Units Requested by Hospital Location

Sum of Total Units by BloodGroup

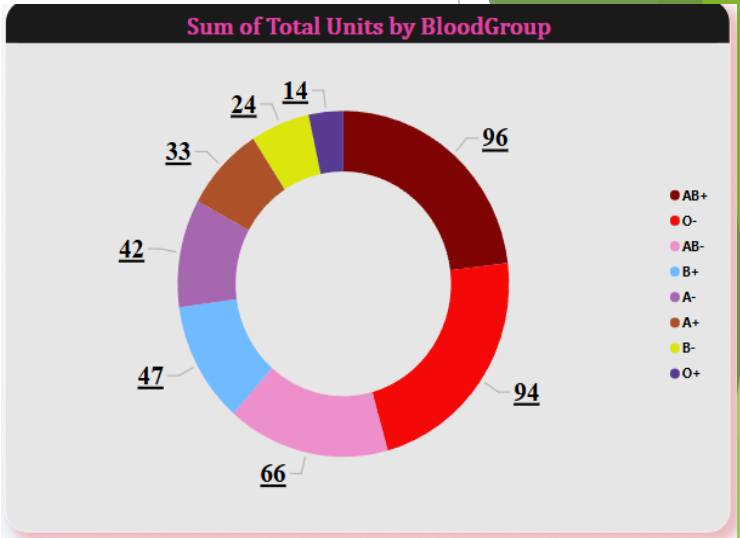


Count of Donor by BloodGroup



1.Sum of total units available by each blood groups.

- SELECT BloodGroup, SUM(UnitsAvailable) AS TotalUnitsFROM BloodInventoryGROUP BY BloodGroup;

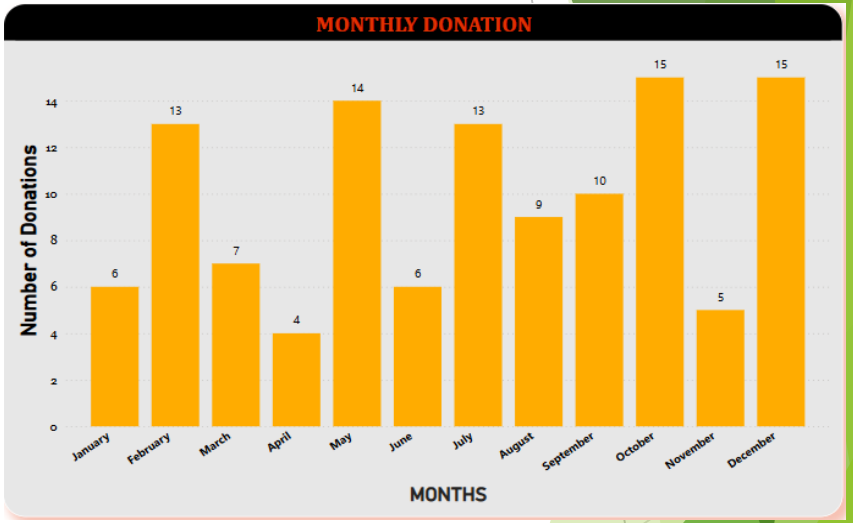


Blood Group Inventory Insight
AB+ (96 units) and **O- (94 units)** are the most available blood groups, indicating strong donor response or low usage.
O+ (14 units) and **B- (24 units)** are critically low and need urgent replenishment.

AB- (66 units) is rare but well-stocked — a positive sign.

2.Identify peak months for donations to optimize campaigns.

- SELECT MONTH(Date) AS Month, COUNT(*) AS Donations FROM DonationRecords GROUP BY MONTH(Date);

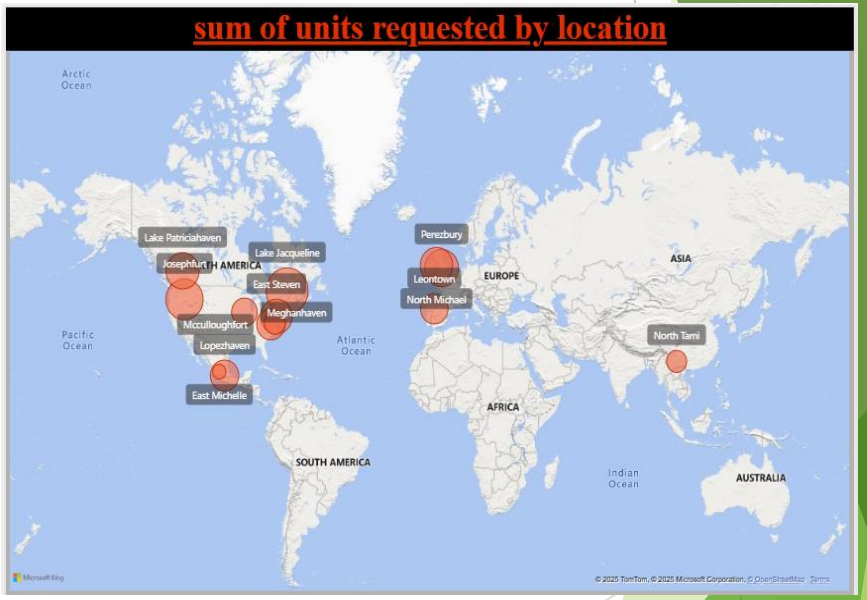


Peaks donation months: October and December (15 donations each) have the most donations.

3. Units requested by location

- SELECT h.location as hospitalLocation, SUM(br.UnitsRequested) AS TotalUnitsRequested FROM BloodRequests br INNER JOIN Hospitals h ON br.HospitalID = h.HospitalID GROUP BY h.Location;

	HospitalLocation	TotalUnitsRequested
▶	Lake Jacqueline	34
	Greenmouth	1
	East Steven	18
	North Michael	19
	Lake Patriciahaven	20
	Mcculloughfort	14
	Maddoxfort	7
	Lopezhaven	14
	Perezbury	21
	East Michelle	2



Insights from Dashboard

- **Lake Jacqueline** and Perezbury have the highest number of requests, with a significant portion pending or rejected. Several hospitals like **East Michelle** and **North Tami** have lower request volumes, possibly indicating lower demand.
- Geographical patterns suggest the need to set up mobile donation drives or supply chains in high-demand areas.
- **AB+ (96 units)** and **O- (94 units)** have the highest available stock, indicating these groups are in surplus. Groups like **O+ (14 units)** and **B- (24 units)** are critically low, suggesting priority in collection drives and donor engagement.
- The average donor age is **39.12 years**, indicating that donors are primarily middle-aged adults. Campaigns could be tailored toward this demographic while encouraging younger donors to participate.
- There are **416 units** currently available, which can serve multiple hospitals but still requires optimization for rare blood types.

Storytelling

- Imagine a hospital where doctors are ready to save lives, but they don't have enough blood when it's needed most. That's where our **Blood Bank Management System** comes in.
- It starts by showing which hospitals need blood the most and which blood groups are running low. For example, we see that groups like **O+ and B-** are in short supply, and we can quickly send out messages to donors with these blood types. At the same time, the dashboard tells us that most donors are around **39 years old**, so we can create campaigns that reach the right people.
- With **416 units of blood** available, we can make sure it's shared wisely across hospitals, especially where there's high demand. This way, patients get the blood they need on time, and no blood goes to waste.

Conclusion

- - Designed a scalable database for blood bank management
- - Used advanced SQL for data manipulation and reporting
- - Integrated Power BI for impactful, real-time insights

Thankyou