

# Blood Bank Management

## Scope of Assignment

This assignment aims to verify API development skills, It intends to verify the design skills. The ability to understand requirements, implement business rules of the system.

## Assignment Details

Implementing a Blood Bank backend system.

An Individual Donor donates blood at the branch. The donated blood is tested for safe use. The Tested blood can either be kept as whole blood for 'whole blood' transfusion or can be processed into different components. The different components can be Red Cell, Fresh Frozen Plasma, Platelet Concentrate.

By using blood components, several patients can be treated with the blood from one donor, leading to optimal use of every unit of donated blood.

The system will be designed as a set of rest endpoints.

- Register a Blood Bank Branch with Address and Contact details.
- Register Member who can donate blood or request for blood or its components.
- Record blood donation details.
- Record Test result for a blood donation.
- Store request for donated blood unit either as Whole or as Component. Calculate Shelf life and update the inventory.
- Record blood or component request and update the inventory.
- Search for blood or blood component active inventory across branches.
- Leader board - for top donors. By Period - by month, year and By Branch or Across Branch.

Donation and Receipt Record can have the following information,

- Unique Transaction ID
- MemberID
- BranchID
- TransactionDate
- Quantity
- Tested
- BloodGroup

Inventory Record can hold the following information,

- Donor transaction reference
- Quantity In milli-litre
- Blood Group type
- Sub Type (Whole, RBC, Plasma, Platelet)
- Expiry Date
- Active

Note:

- Record blood test result, mark the unit as un-usable in case of the failed test.
- A Single donation by a donor can be fixed 450ml for the assignment
- Interval of 90 days should be maintained between two donations by the same donor.
- Expired inventory should not be searchable.

Storage Type	% of Whole Blood	Shelf Life
Whole Blood	100%	35 days
Red Blood Cells	45%	35 days
Fresh frozen plasma (FFP)	54%	12 months
Platelet concentrate	1%	5 days

Note: The details about the blood management system about its operations, blood component and shelf life and quantity are hypothetical.