



Child Immunizations

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Team Introduction

Leader: Mason Beale

- Github management, domain model

Pair A: Abdirahman + Milo

- Use cases, clinic, vaccine, monthly report, GUI

Pair B: Ellis + Gabrielle

- Dosable, visit, vitamin, reminders, patient extension



Goal

1. Develop a data entry system to replace/ease the use of the Ghana Health Service Immunization Register
2. Provide an improved way of presenting Immunization Returns reports
3. Develop a system to alert CHO's of immunization needs

[From GitHub ReadMe](#)

Immunization register and monthly return PDFs

GHANA HEALTH SERVICE IMMUNIZATION REGISTER

FACILITY/ZONE..... SUBDISTRICT..... DISTRICT..... YEAR.....

S/No	DATE	CHILD REG. No	CHILD'S NAME	MOTHER'S NAME	PARITY	ADDRESS (LOCATION/CO IMMUNITY/ HSE No)	DATE OF 1 st REG	DOB	Sex	WEIGHT	VIT. A	BCG	POLIO	PENTA	MEASLES	YF	CSM	ITN USE	REMARKS
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			

GHANA HEALTH SERVICE IMMUNISATION MONTHLY RETURNS

Immunisation Centre/Clinic..... Metro.....

Region..... For the month of.....

Disease	Vaccine	NUMBER GIVEN (BY AGE GROUP)					Number of Doses Used					Wastage rate	
		No. of doses	0-11 Months	12-23 Months	24 Months and above	Total doses administered	2 doses	5 doses	10 doses	20 doses	Total doses		
Tuberculosis	BCG	1											
Diphtheria	1st												
Pertussis	2nd												
Tetanus	2nd												
Hepatitis B	PENTA												
H-Influenza B													
Polio	At Birth												
Polio	1st												
Polio	2nd												
Polio	3rd												
Measles	Measles	1											
Yellow Fever	YF	1											
Tetanus	TT	1st											
Tetanus	2nd												
Tetanus	3rd												
Tetanus	4th												
Tetanus	5th												

Vitamin A supplementation Vitamin A used (L)

Vitamin A Deficiency	Vitamin A	6-11 months	12-59 months	Post - Partum	100000	200000

Number of AEFI reported

AEFI

Injection safety and waste management

Number of safety boxes used

Number of safety boxes disposed off/burnt

1. Incinerator

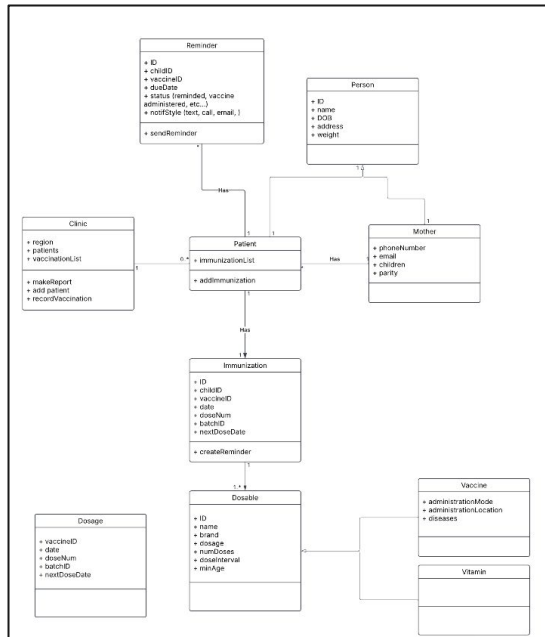
2. Pit



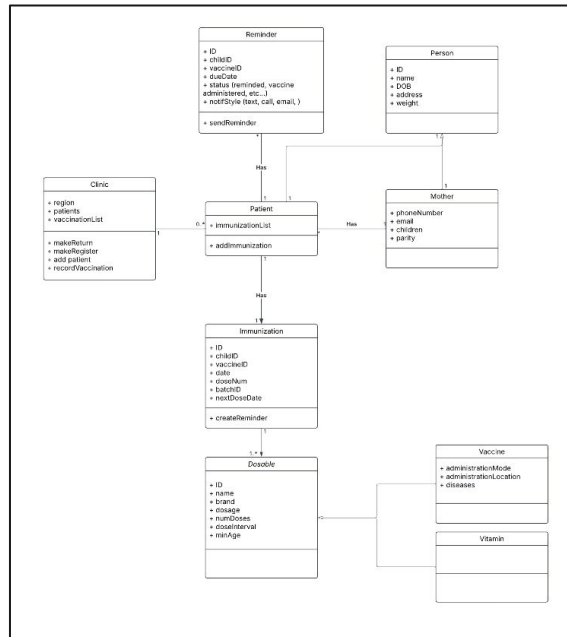
Use Cases / Stories

- Record Visit
 - The patient
 - Their weight
 - Vaccines given
 - Vitamins given
 - Add reminders if necessary
- Modify Recorded Visit
 - In case data was entered wrong
- Generate Patient Record
 - Gives the entire history of the patient's immunization history
- Send Vaccination Reminder
 - For vaccines that have multiple dosages that are spread apart by a certain amount of time
- Generate an Immunization report / register from a Clinic
- + a few more

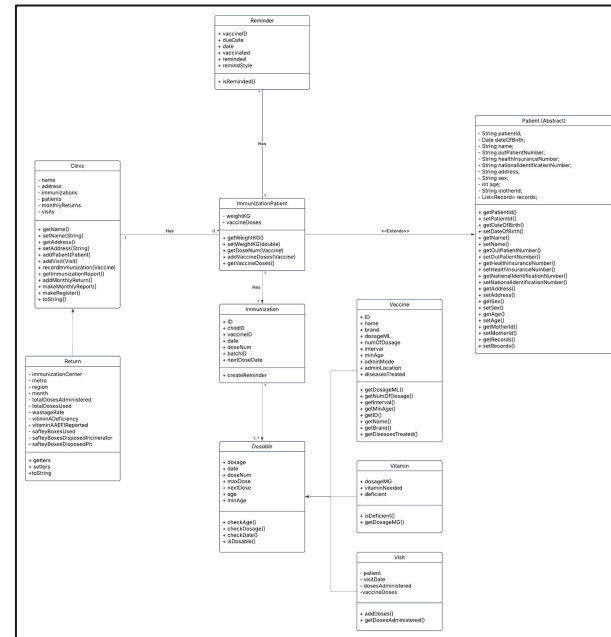
UML Diagram Evolution



Iteration 1

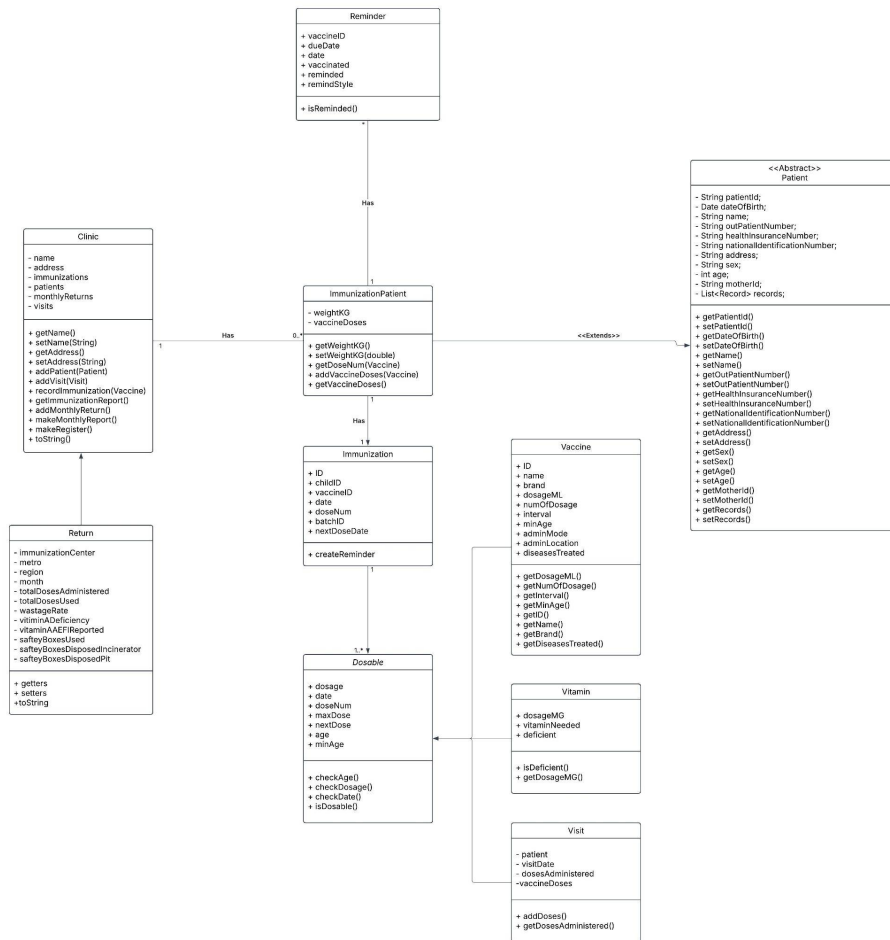


Iteration 2



Iteration 3

“Final” UML





Immunization Patient

```
/**
 * ImmunizationPatient.java
 * Adds a weight data member to keep track of the patients weight and number of doses they have received
 * ! Subject to change.
 *
 * @author Ellis Fitzgerald & Gabrielle Akers
 * @version April 25, 2025
 */
public class ImmunizationPatient extends Patient {
    private double weightKG;
    private Map <Vaccine, Integer> vaccineDoses = new HashMap<>();
}
```




Dosables

```
public class Vitamin extends Dosable {  
    int dosageMG;  
    int vitaminNeeded;  
    int deficient;
```

```
public class Vaccine extends Dosable{  
    int ID;  
    String name;  
    String brand;  
    int dosageML;  
    int numOfDosage;  
    int interval; //in days  
    int minAge;  
    String adminMode;  
    String adminLocation;  
    ArrayList<String> diseasesTreated;
```



Clinic + Visit + Reminder

```
public class Clinic {  
    private String name;  
    private String address;  
    private List<Vaccine> immunizations = new ArrayList<>();  
    private List<Patient> patients = new ArrayList<>();  
    private List<Return> monthlyReturns = new ArrayList<>();  
    private List<Visit> visits = new ArrayList<>();  
}
```

```
public class Reminder {  
    int vaccineID;  
    LocalDate dueDate;  
    LocalDate date;  
    boolean vaccinated;  
    boolean reminded;  
    String remindStyle;  
}
```

```
public class Visit extends Dosable{  
    private ImmunizationPatient patient;  
    private LocalDate visitDate;  
    private ArrayList<Vaccine> dosesAdministered;  
    private Map<Vaccine, Integer> vaccineDoses = patient.getVaccineDoses();  
}
```

Repository Structure

Switch branches/tags

Find or create a branch...

Branches

Tags

✓ main

default

24-making-a-guixample-class-for-the-pr...

implement-simple-vaccine-dosable

make-clinc-work

make-register-and-return-class

reformat-commenting-style

View all branches

ChildImmunizations

main 6 Branches 0 Tags

Go to file

Add file

Code

About

MasonBeale Update README.md 90ca9c7 · 19 minutes ago 83 Commits

Archive Moving Iterations into Archive 35 minutes ago

documentation Delete documentation/domain model.drawio 2 days ago

README.md Update README.md 19 minutes ago

README

Child Immunizations

Goals:

1. Develop a data entry system to replace/ease the use of the Ghana Health Service Immunization Register
2. Provide an improved way of presenting Immunization Returns reports
3. Develop a system to alert CHO's of immunization needs

Development Team

Team Lead

Mason Beale

Team Members

Team 1 Abdirahman Mohamed Ellis Fitzgerald

Releases

No releases published
[Create a new release](#)

Packages

No packages published
[Publish your first package](#)

Contributors 6

Languages

Java 100.0%

Suggested workflows

Based on your tech stack

Archive

Iteration1

Iteration2

Iteration3

Clinic.java

ClinicController.java

ClinicModel.java

ClinicView.java

DomainModel-april-27-2025.pdf

Dosable.java

ImmunizationPatient.java

Main.java

Patient.java

Reminder.java

Return.java

UseCases-april-27-2025.pdf

Vaccine.java

Visit.java

Vitamin.java

documentation

ExampleClinicRegister.txt

ExampleMonthlyReturns.txt

Team Roster

README.md

Milestones and Issues

- One milestone per iteration
 - One for the presentation
- Issues made per problem
 - Assigned to milestone
 - Assigned to team members
 - Given its own branch

Iteration 2

Open

100% complete


Given that we have only two more iterations, things should be coming together now. The "big catch" (risk) is there is not yet (to my knowledge) a fully agreed upon interface for the information about a given Patient. Team leaders need to get together and work on this - setting a deadline for finalizing it as they see fit, keeping in mind the overall deadline. Even if this deadline is set before the due date for the current iteration (April 17), it is quite possible that teams will not have fully adjusted to the interface. Complete compliance with that interface might be a goal, but is not a requirement, of this iteration.

(Just to clarify what is coming, there WILL be (20-minute, including questions) demonstrations by each team as part of the next iteration. These demonstrations will occur during class (lecture) time during the last week of the semester. Such demonstrations ARE part of

Show more

☐ Open **0** **Closed 5**

☐ ☒ **Visit** implementation
#15 · by EllisFitzUSM was closed 2 weeks ago

☐ ☒ **Make Register and Return Class** implementation
#14 · by EllisFitzUSM was closed 2 days ago 1 3 

☐ ☒ **Completing Code**
#13 · by MasonBeale was closed 2 days ago

☐ ☒ **Update Use Cases**
#12 · by MasonBeale was closed 2 weeks ago 1 

☐ ☒ **Update Domain Model**
#11 · by MasonBeale was closed 2 days ago

Strengths



- Setting realistic goals
 - Per iteration
 - Per issue
- Using issues and milestones
 - Kept good organization
- Focused meetings
 - scrum-like stand up
- Able to disagree and compromise
- Communication
 - Used slack constantly
- Documentation effort ([uniform commenting style](#))

Weaknesses



- Pair programming
 - Assigned to same issues
 - Problems **too** small
- Architectural concepts / designs
 - Too time consuming
 - Changed too often
- No mission statement
 - Are we data entry or vaccination scheduling
 - Missing links for extra information
- Terminology
 - return/register/report
 - Dosage, doses required, dose interval
 - Vaccination vs immunization

Demo

Clinic Management System

Clinic Details

Patients

Visits

Reports

Vaccines

Vitamins

ID	Name	Brand	Dosage (ml)	Stock
1	COVID mRNA	Pfizer	0.3	50

Refresh

Save Changes

Restock

Add New Vaccine

Delete Vaccine

Clinic Management System

Clinic Details

Patients

Visits

Reports

Vaccines

Vitamins

ID	Name	Brand	Dosage (mg)	Stock
1	Flintstone Chewables	Bayer	1.0	800

Refresh

Save Changes

Restock

Add New Vitamin

Delete Vitamin

Restock Vaccine

Vaccine ID:

Amount to Add:

OK

Cancel

Restock Vitamin

Vitamin ID:

Amount to Add:

OK

Cancel

Demo

Add New Vaccine

ID:

Name:

Brand:

Dosage (ml):

Initial Stock:

Dosage Count:

Interval (days):


Treats (comma separated):

OK

Cancel

Clinic Management System				
Clinic Details	Patients	Visits	Reports	Vaccines
ID	Name	Brand	Dosage (ml)	Stock
1	COVID mRNA	Pfizer	0.3	50
2	HIV v	Pfizer	0.2	4
RefreshSave ChangesRestockAdd New VaccineDelete Vaccine				

Demo

 Clinic Management System

Clinic Details

Patients

Visits

Reports

Vaccines

Vitamins

Patient ID	Date of Visit	Vaccines	Remarks
1	30/04/2025	COVID, Flu	
1	30/04/2025		good check up
13	30/04/2025		I hear the gang of four is good ...
40	30/04/2025		

Search:

Search Visit

Add Visit

Delete Selected

Add New Visit

×

Patient ID:

Date (dd/MM/yyyy):

Vaccines (comma separated):


Remarks:

OK

Cancel

Confirm Deletion

×



Are you sure you want to delete this visit?

Patient: Zeb

Date: 30/04/2025

Yes

No

Demo

Clinic Management System

Clinic DetailsPatientsVisitsReportsVaccinesVitamins

Monthly Return Report for City Clinic (123 Main Street)
=====

GHANA HEALTH SERVICE
IMMUNIZATION MONTHLY RETURNS

Immunization Centre/Clinic: City Clinic
Metro: Metro Zone
Region: Central Region
For the month of: April 2025

Disease	Vaccine	No. of doses	0-11 Months	12-23 Months	24+ Months	Total Administered	2 doses	5 doses	10 doses	20 dose
Summary	--	--	--	--	--	500	--	--	--	--

Vitamin A supplementation
Vitamin A Deficiency | 6-11 months | 12-59 months | Post-Partum |

Number	10	--	--	
AEFI reported	1	--	--	

Injection safety and waste management

Description	Count
Safety boxes used	25
Safety boxes disposed (incinerator)	18
Safety boxes disposed (pit)	7

End Report.

Generate Immunization Report

Generate Monthly Report



Thank you

Questions?