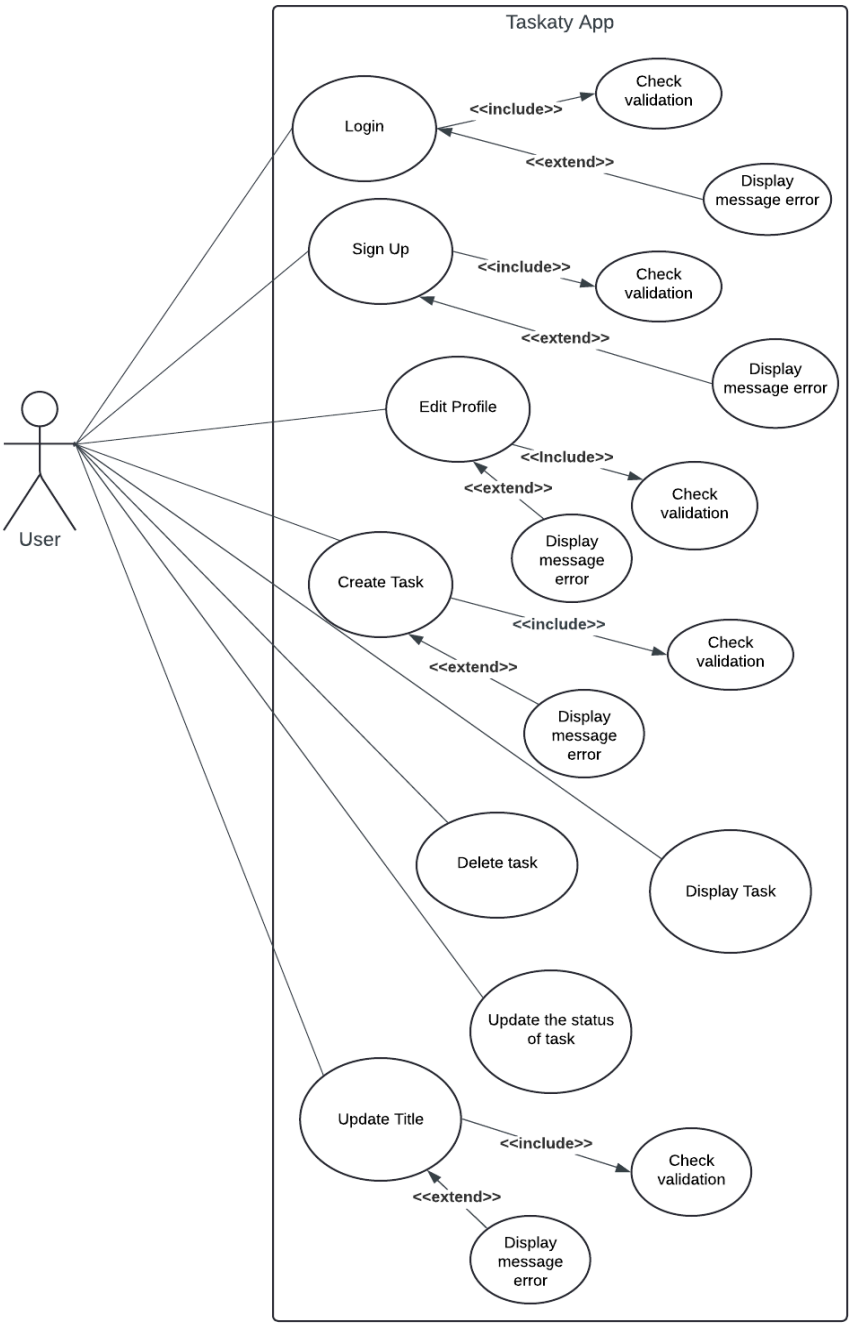
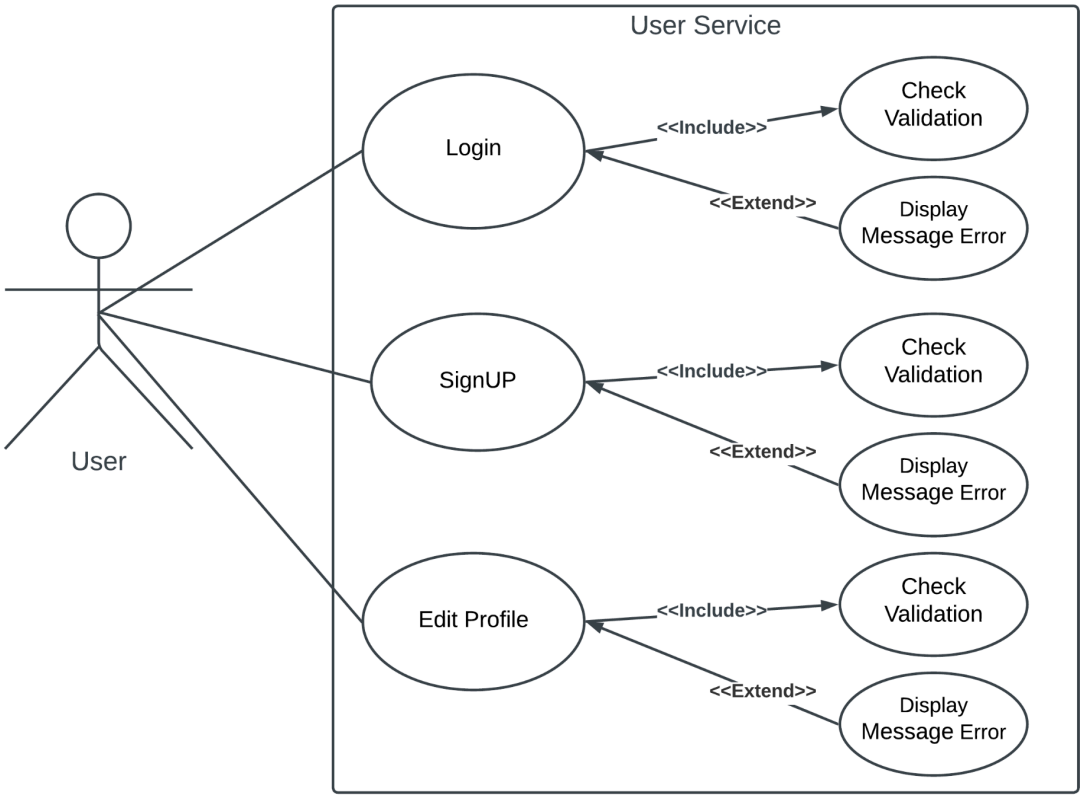
Software Requirements Specification (SRS)

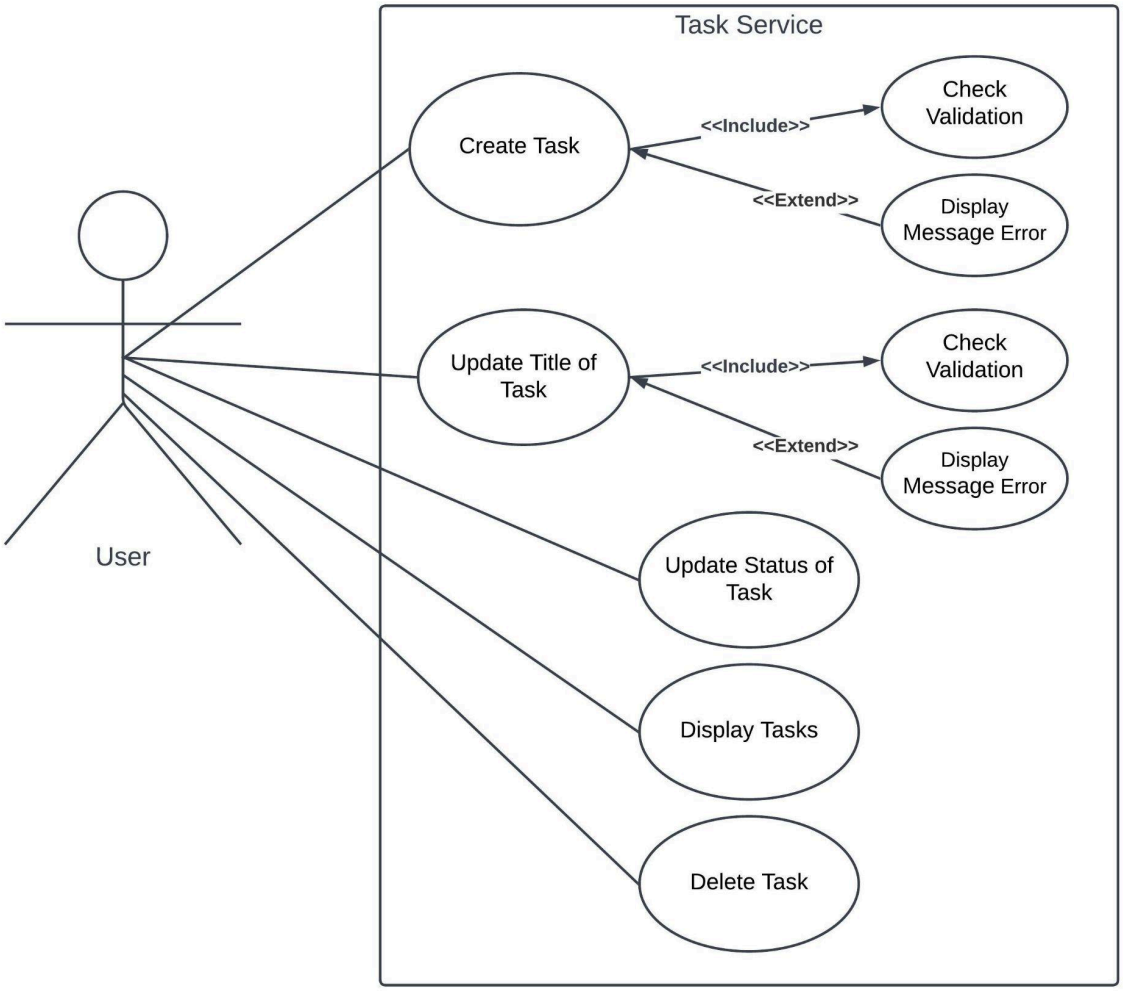
Use Case



User Service :



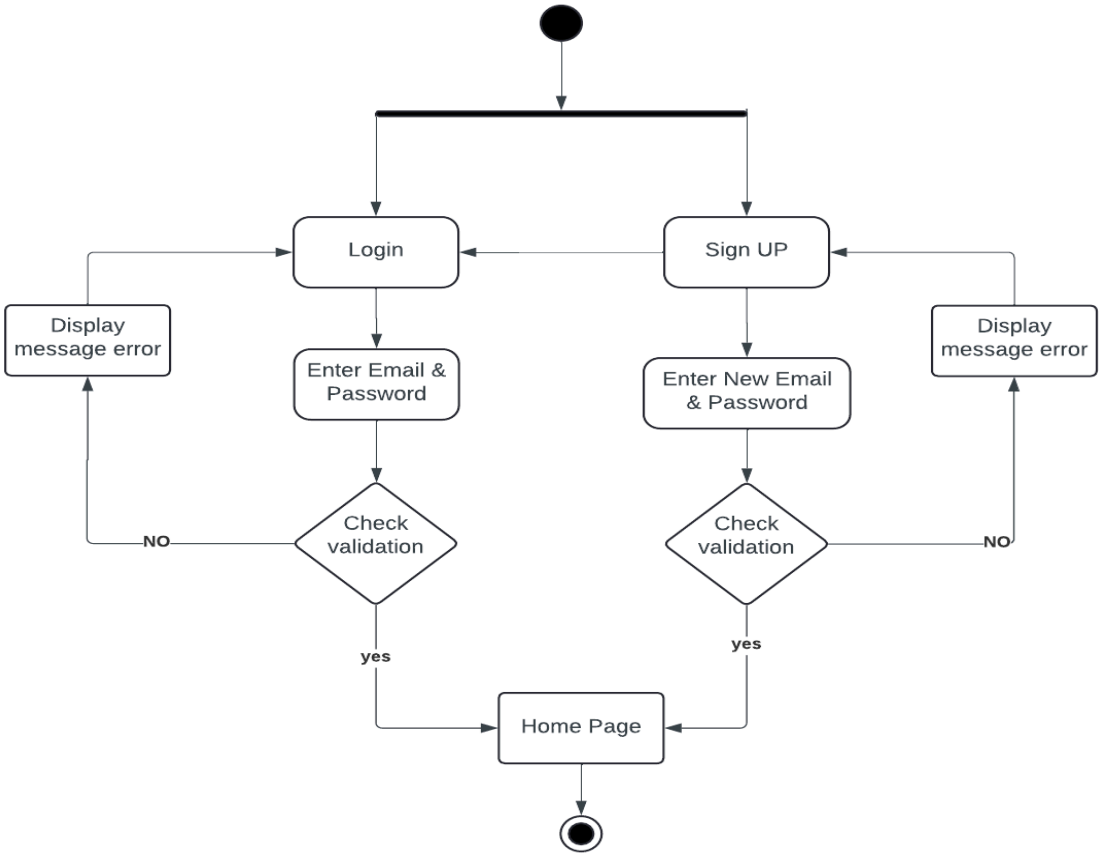
Task Service :



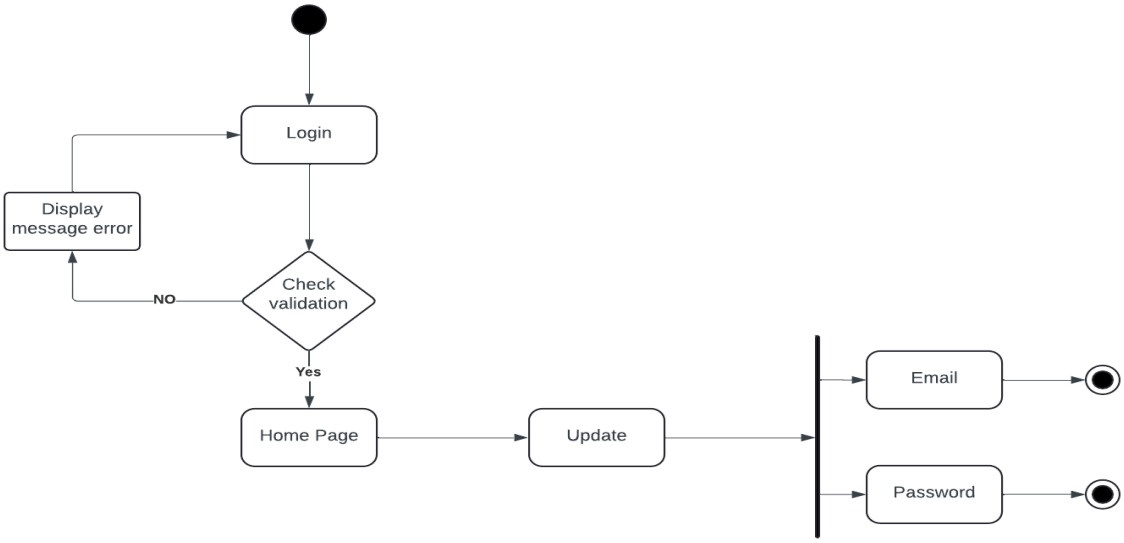
Activity diagram

User Service :

- **Login & Signup**

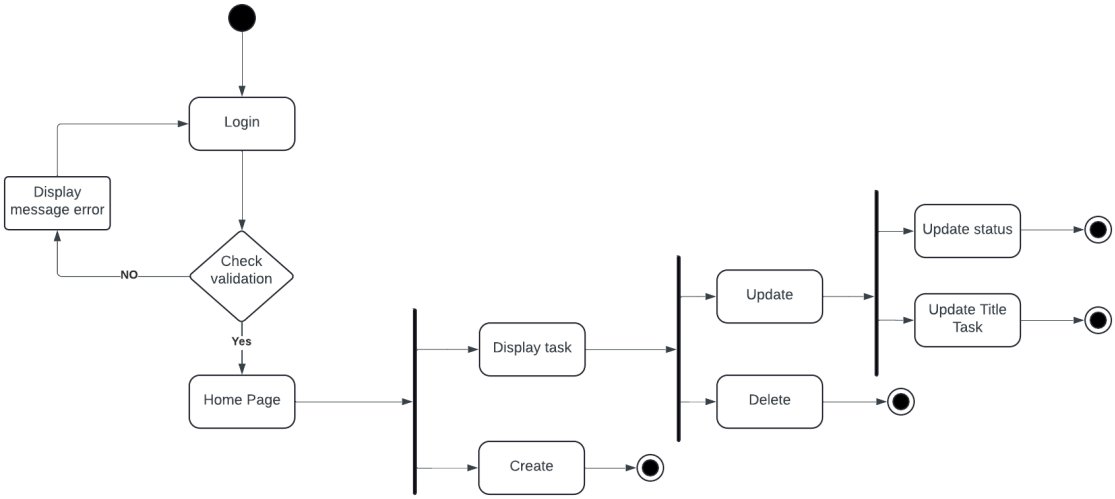


- **Edit Profile(Email,Password)**



Task Service :

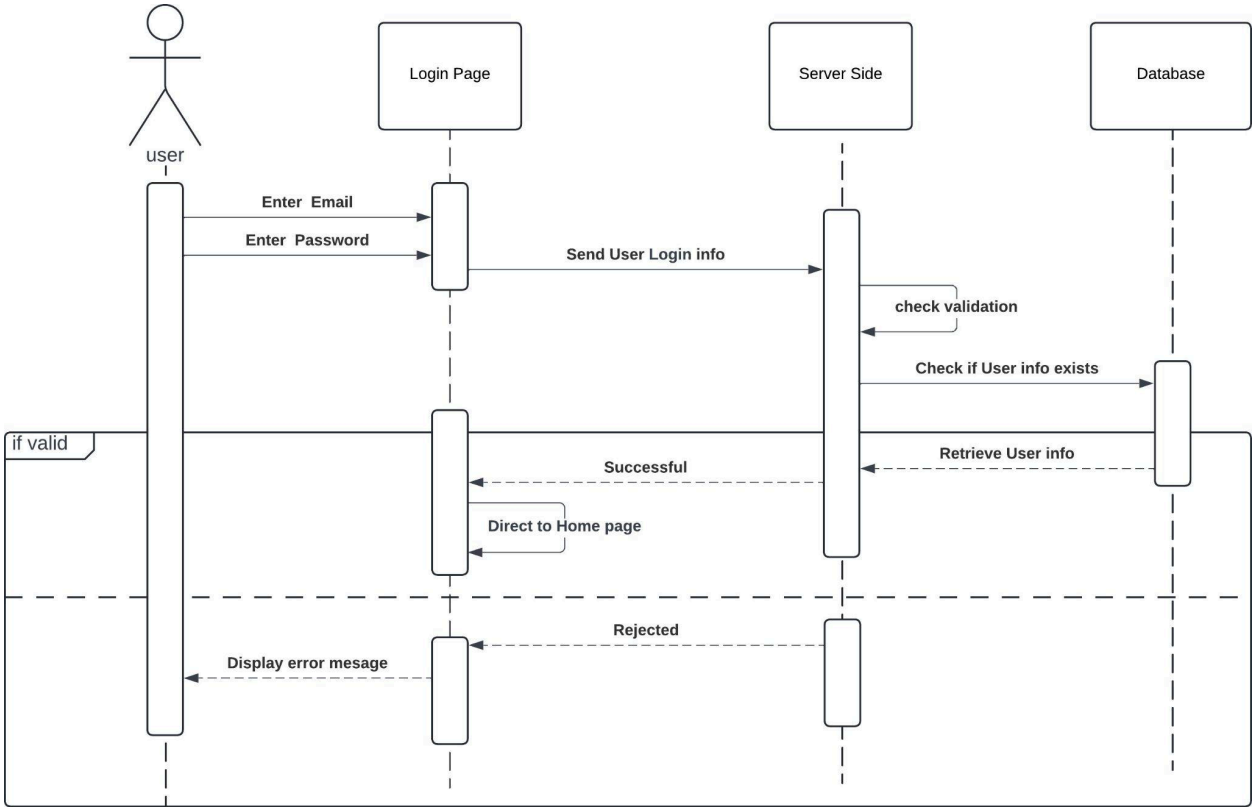
- **Task Management (Create - Display - Update - Delete)**



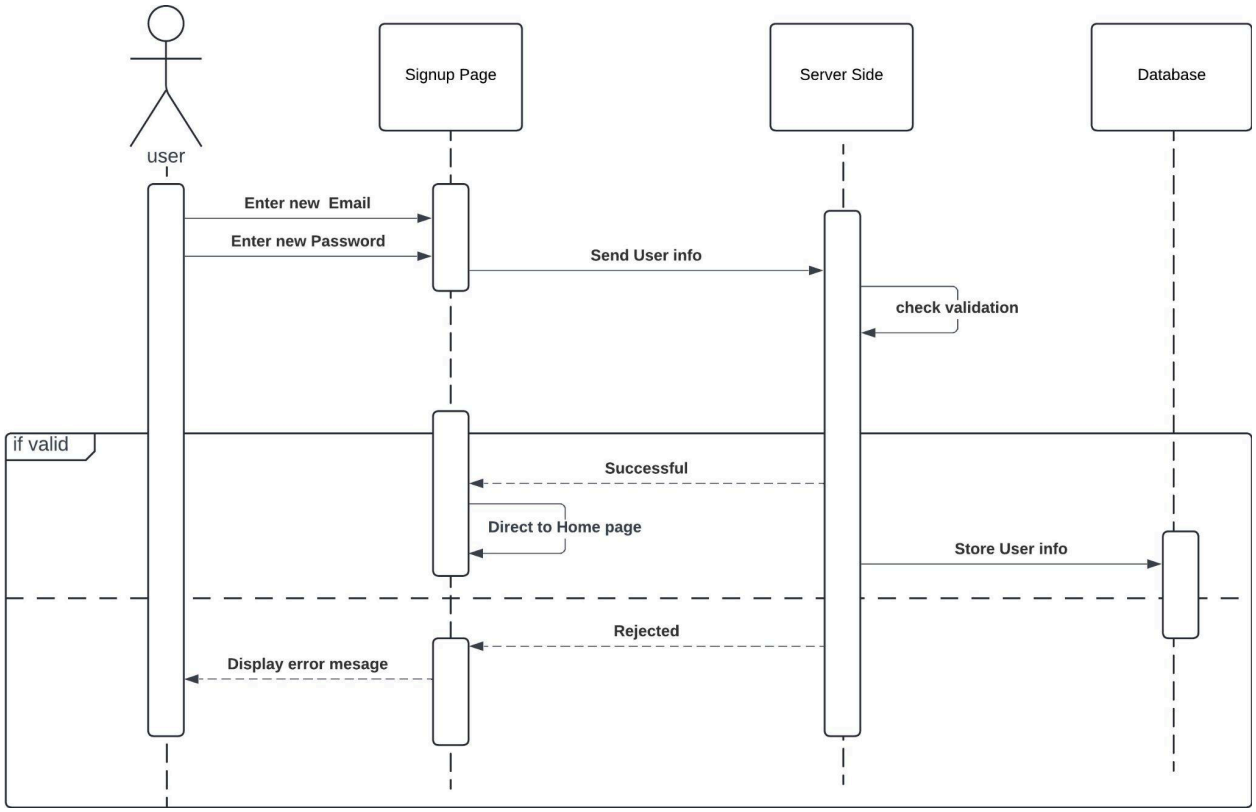
Sequence Diagram

User Service :

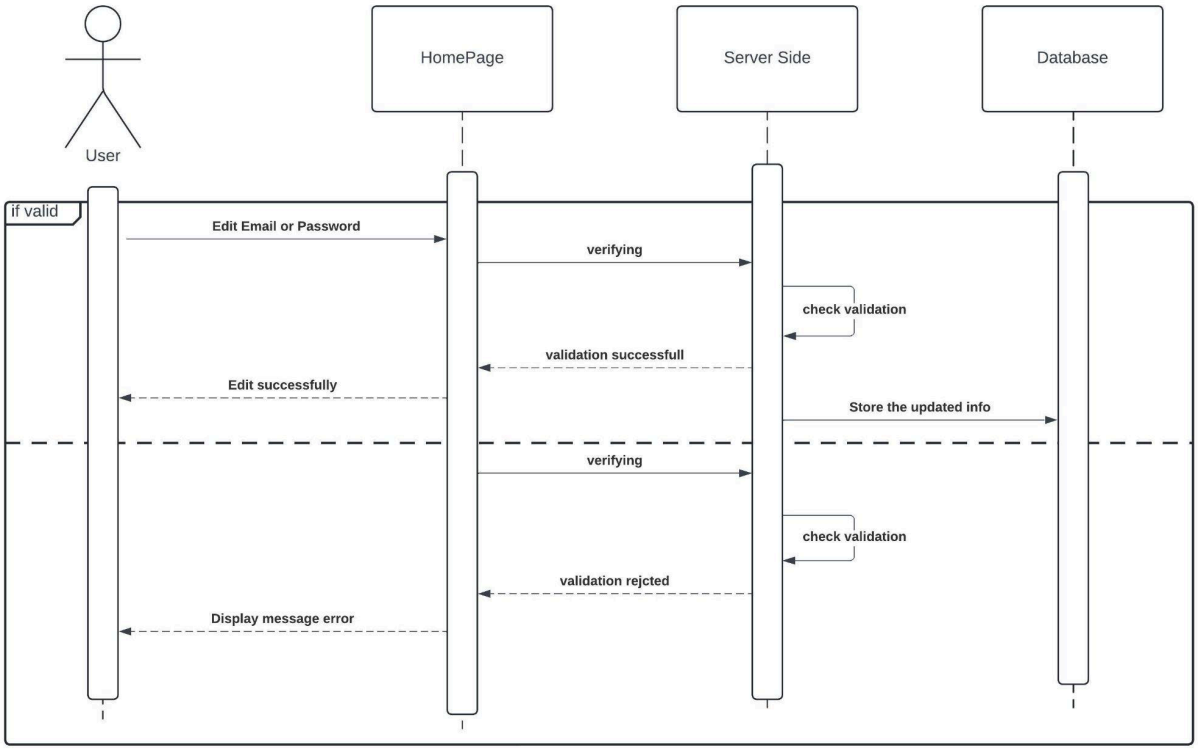
Login :



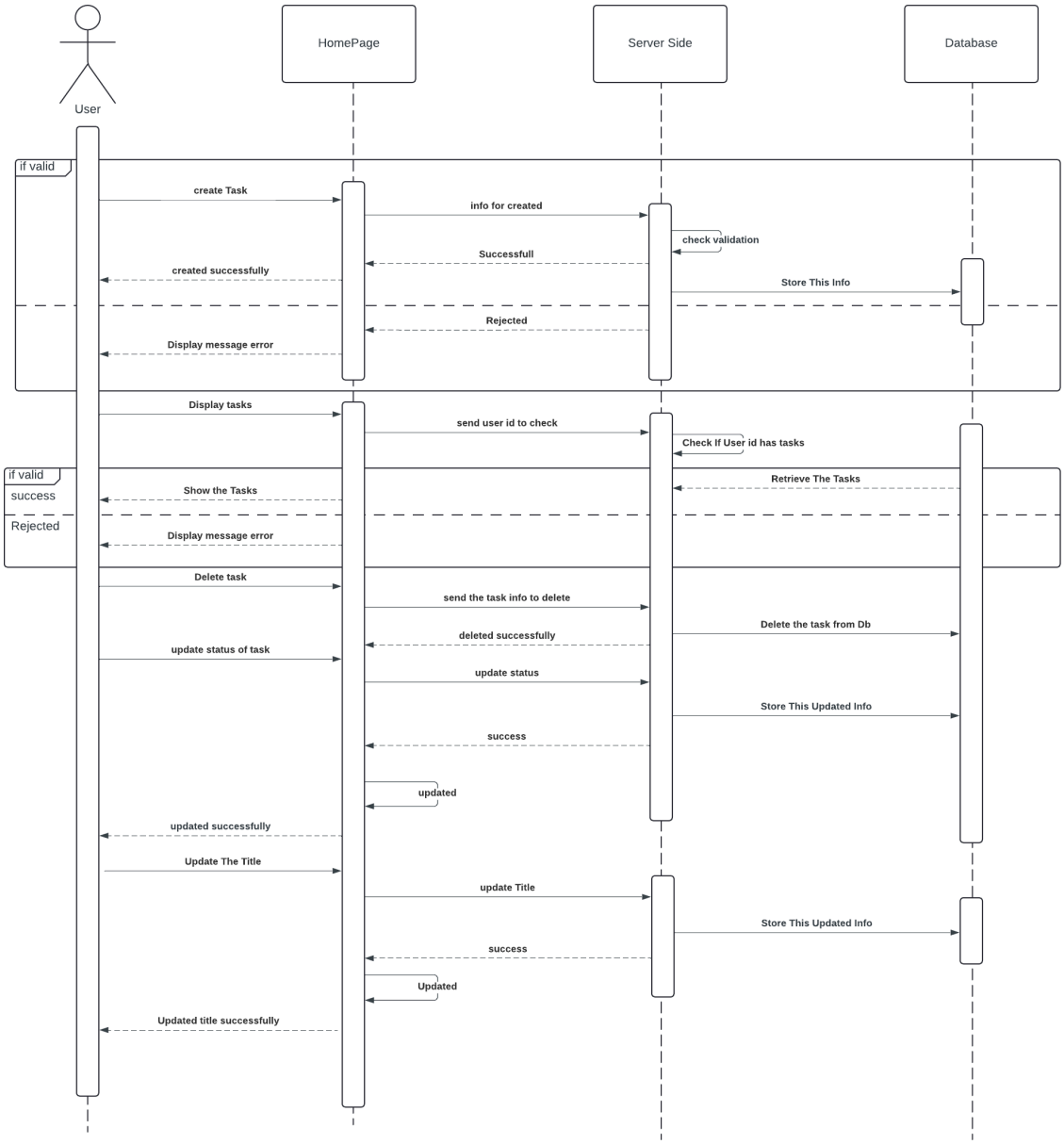
Sign Up :


user
Signup Page
Server Side
Database
Enter new Email
Enter new Password
Send User info
check validation
if valid
Successful
Direct to Home page
Store User info
Rejected
Display error mesage

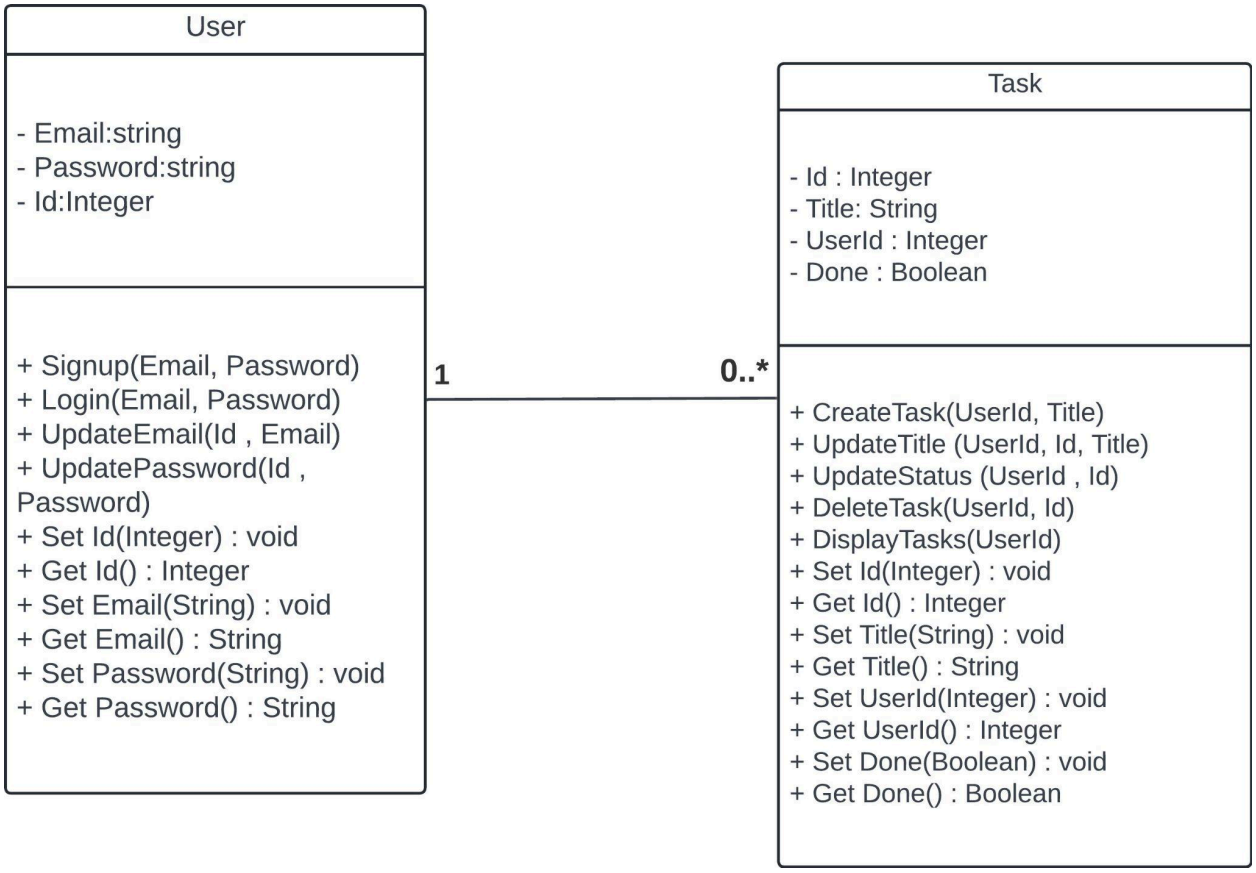
Edit Profile :



Task Service (Create - Display - Update - Delete) :



Class Diagram



OCL Diagram

Task Microservice:

Constraint 1: Tasks must have a title.

context Task

invariant: self.title <> null

Constraint 2: Task titles must be between 1 and 100 characters long.

context Task

invariant: self.title.size() >= 1 and self.title.size() <= 100

Constraint 3: Tasks must have a user ID associated with them.

context Task

invariant: self.userId <> null

Constraint 4: Tasks must have a Status.

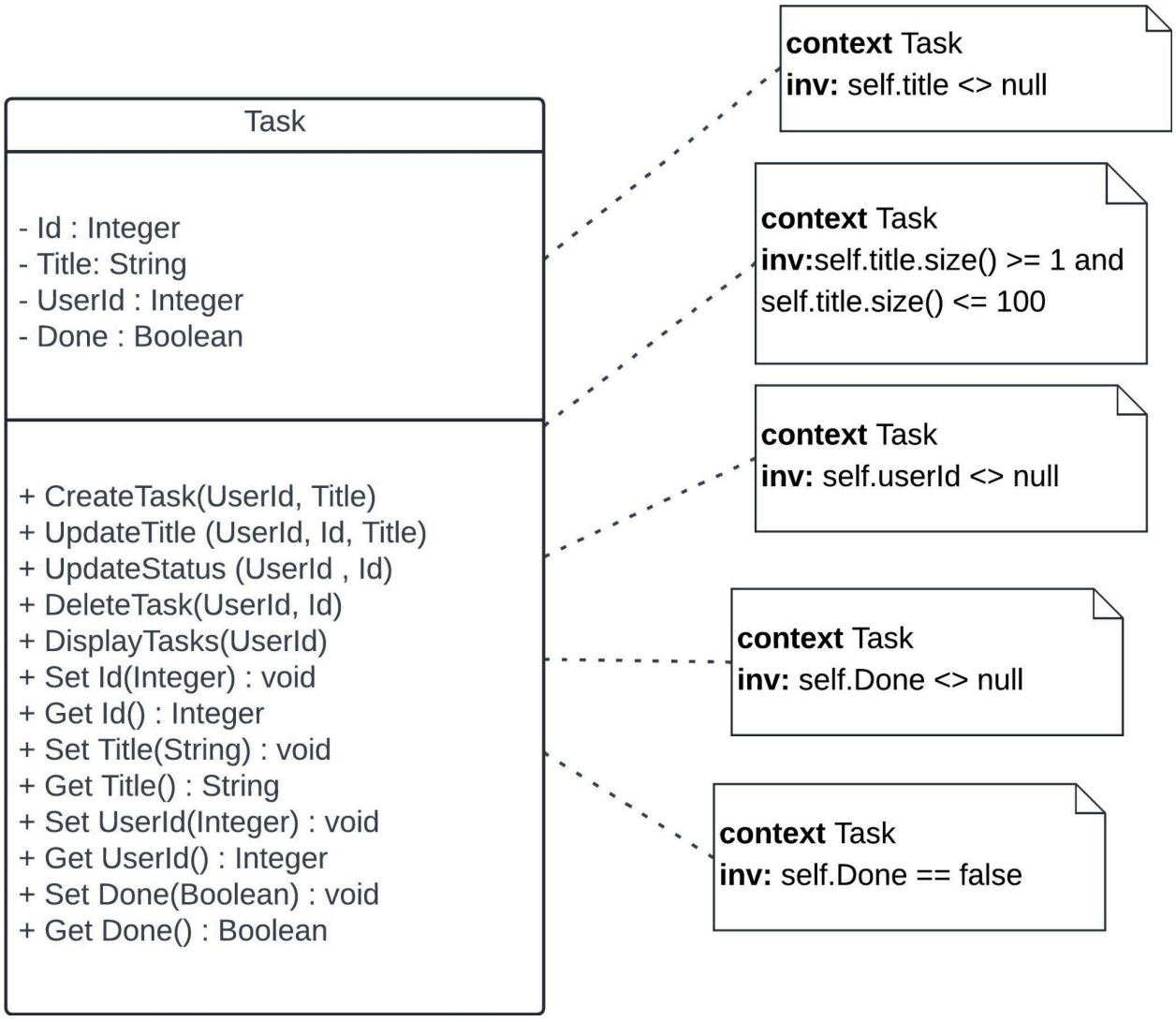
context Task

invariant: self.Done <> null

Constraint 5: Tasks when created must have a default status value.

context Task

invariant: self.Done == false



User Microservice:

Constraint 1: User email addresses must be unique within the system.

context User
invariant: User.allInstances()->forAll(u1, u2 | u1 <> u2 implies u1.email <> u2.email)

Constraint 2: User must have an email address.

context User
invariant: self.email <> null

Constraint 3: User email addresses must follows the standard email format.

context User
invariant:self.email.matches('[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\\.[a-zA-Z]{2,}')

Constraint 4: User must have a Password.

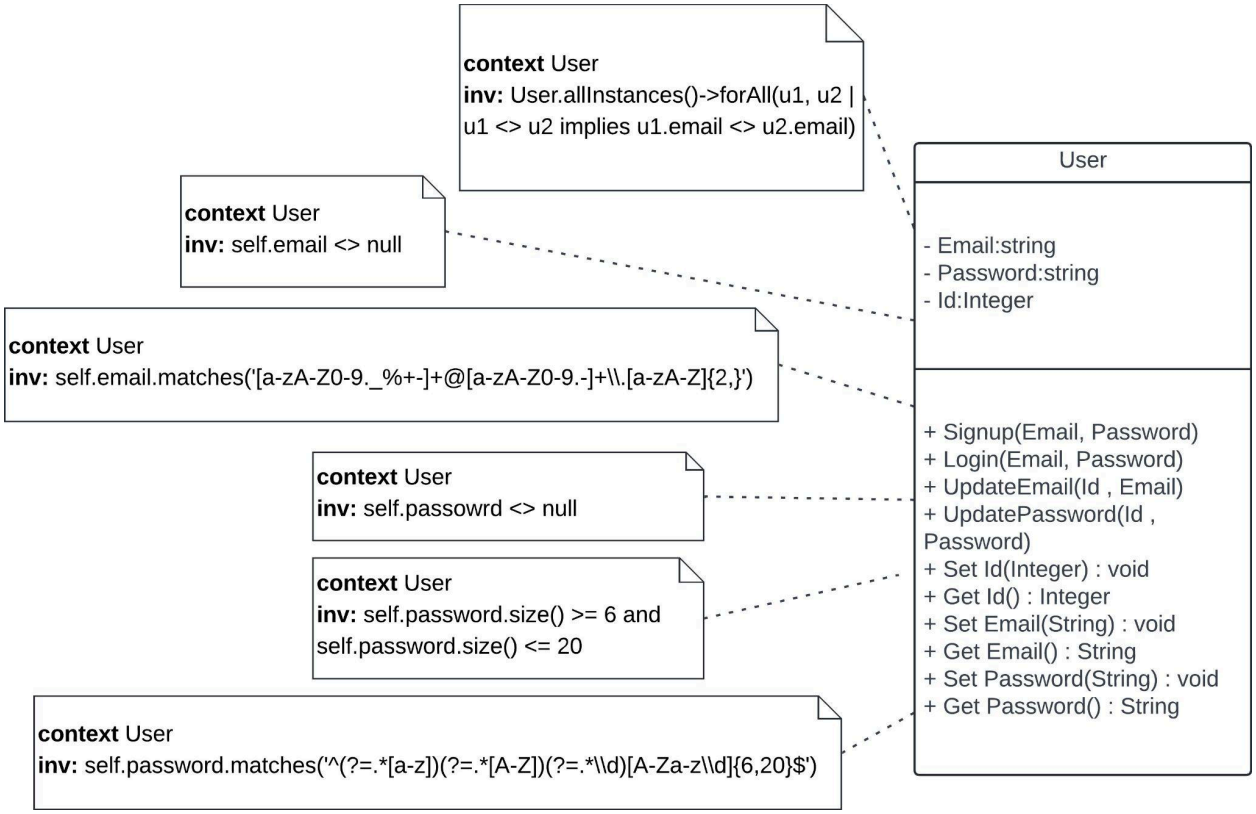
context User
invariant: self.passowrd <> null

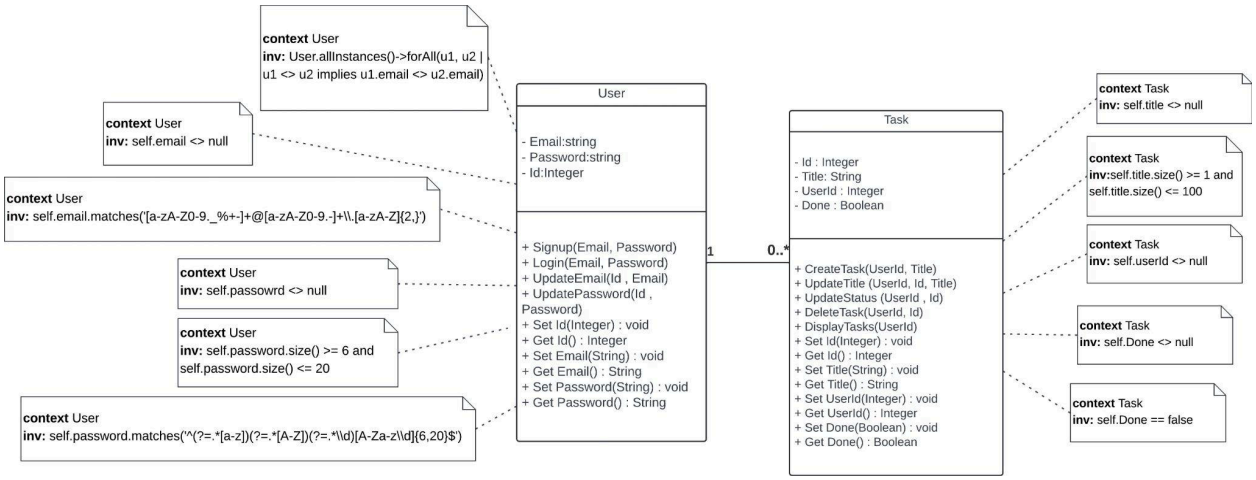
Constraint 5: User Password size must be between (6-20).

context User
invariant: self.password.size() >= 6 and self.password.size() <= 20

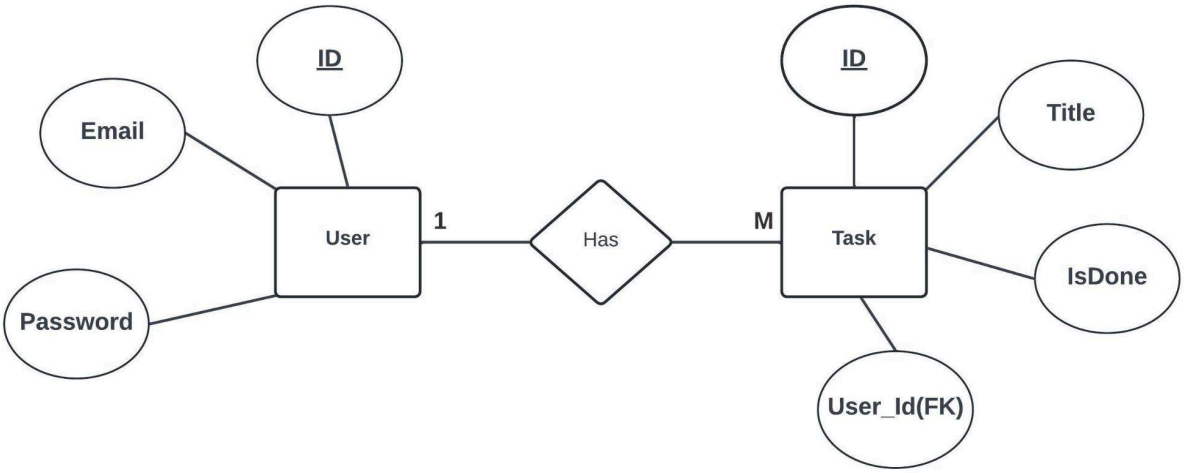
Constraint 6: User Passwords must meet some complexity requirements and regular expressions.

context User
invariant:self.password.matches('^(?=.*[a-z])(?=.*[A-Z])(?=.*\\d)[A-Za-z\\d]{6,20}$')

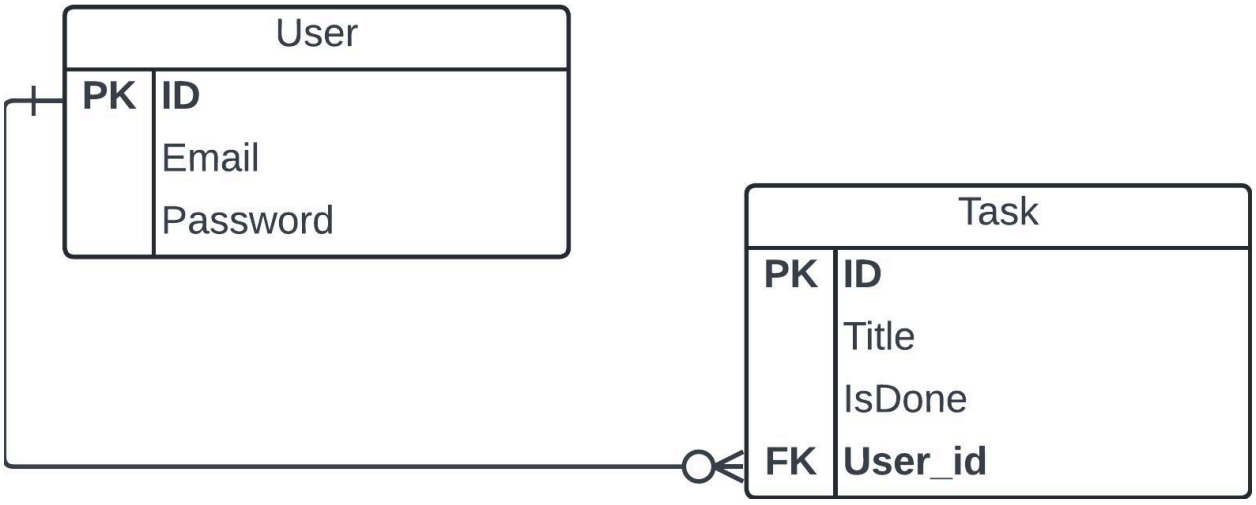

context User
inv: User.allInstances()->forAll(u1, u2 | u1 <> u2 implies u1.email <> u2.email)
context User
inv: self.email <> null
context User
inv: self.email.matches('[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\\.[a-zA-Z]{2,}')
context User
inv: self.passowrd <> null
context User
inv: self.password.size() >= 6 and self.password.size() <= 20
context User
inv: self.password.matches('^(?=.*[a-z])(?=.*[A-Z])(?=.*\\d)[A-Za-z\\d]{6,20}$')
User
- Email:string
- Password:string
- Id:Integer
+ Signup(Email, Password)
+ Login(Email, Password)
+ UpdateEmail(Id , Email)
+ UpdatePassword(Id , Password)
+ Set Id(Integer) : void
+ Get Id() : Integer
+ Set Email(String) : void
+ Get Email() : String
+ Set Password(String) : void
+ Get Password() : String

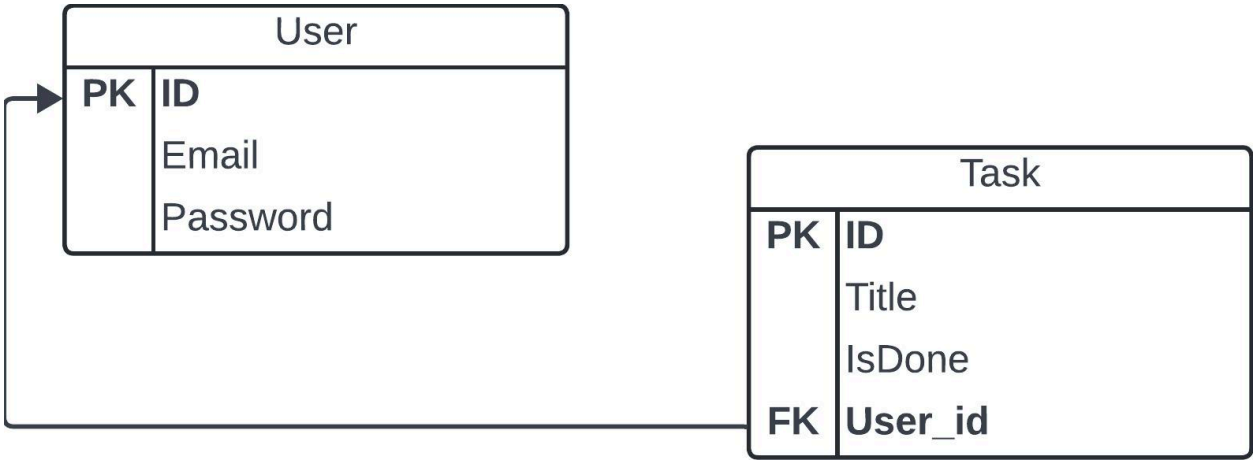

context User
inv: User.allInstances()->forAll(u1, u2 | u1 <> u2 implies u1.email <> u2.email)
context User
inv: self.email <> null
context User
inv: self.email.matches('[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\\.[a-zA-Z]{2,}')
context User
inv: self.passowrd <> null
context User
inv: self.password.size() >= 6 and self.password.size() <= 20
context User
inv: self.password.matches('^(?=.*[a-z])(?=.*[A-Z])(?=.*\\d)[A-Za-z\\d]{6,20}$')
User
- Email:string
- Password:string
- Id:Integer
+ Signup(Email, Password)
+ Login(Email, Password)
+ UpdateEmail(Id , Email)
+ UpdatePassword(Id , Password)
+ Set Id(Integer) : void
+ Get Id() : Integer
+ Set Email(String) : void
+ Get Email() : String
+ Set Password(String) : void
+ Get Password() : String
1
0..*
Task
- Id : Integer
- Title: String
- UserId : Integer
- Done : Boolean
+ CreateTask(UserId, Title)
+ UpdateTitle (UserId, Id, Title)
+ UpdateStatus (UserId , Id)
+ DeleteTask(UserId, Id)
+ DisplayTasks(UserId)
+ Set Id(Integer) : void
+ Get Id() : Integer
+ Set Title(String) : void
+ Get Title() : String
+ Set UserId(Integer) : void
+ Get UserId() : Integer
+ Set Done(Boolean) : void
+ Get Done() : Boolean
context Task
inv: self.title <> null
context Task
inv:self.title.size() >= 1 and self.title.size() <= 100
context Task
inv: self.userId <> null
context Task
inv: self.Done <> null
context Task
inv: self.Done == false

ERD



Entity Relational Schema(DB Schema)




User
PK
ID
Email
Password
Task
PK
ID
Title
IsDone
FK
User_id