Kingdom of Saudi Arabia Ministry of Education Prince Sattam bin Abdul-Aziz University College of Computer Engineering and Sciences software engineering de partment

جامعــة الأمــيــر
سطام بن عبدالعزيز
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المملكة العربية السعودية
وزارة التعليم
جامعة الأمير سطام بن عبدالعزيز
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Project

Tawakkalna System

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Year:

Group Project Proposal

Introduction

With the widespread spread of the Covid-19 virus around the world, countries have tried to adopt various methods to combat the Covid-19 epidemic, such as quarantine and self-isolation. Although this has proven effective to some extent, it has negative effects on the national economy and the intensive effort. Therefore, we suggested making an application that helps the Saudi government limit the spread of the Corona virus. It aims to track cases, save lives and reduce the burden on health facilities to help prevent the spread of COVID-19.

Problems

The COVID-19 pandemic has had multifaceted impacts - not only on people's health and well-being but also on the economic and social spheres. The COVID-19 pandemic has intensified the need for digital technologies to provide accessible, inclusive and value-added public services to all citizens.

Background

We have developed the mobile application to be a solution to prevent the outbreak of the Coronavirus. The application has a range of features, including contact tracing, permit applications, compliance with official guidelines and regulations, and real-time updates on the spread of the virus. Users can use the app to request passes for activities such as going to work, shopping, or attending medical appointments, and the app provides real-time updates on user compliance with official guidelines and regulations.

Proposed solution

We have developed a COVID-19 app called Tawakkalna, to support government activities in response to the pandemic. The application provides services to facilitate COVID tests in terms of submitting a request through the application to conduct the examination and choosing the appropriate time and place to conduct the examination. It also provides permit services to enter gatherings, which helps reduce crowding and prevent the spread of the virus, which reduces the burden on the government.

Work Plan

Task	Days	Start	End	Responsible	Status
Introduction	2	27/4	28/4		**Complete**
problem	2	29/4	30/4		**Complete**
Background	2	1/5	2/5		**Complete**
Proposed approach	3	3/5	5/5		**Complete**
Work plan	2	6/5	7/5		**Complete**
Functional requirements	2	9/5	10/5		**Complete**
Non-functional requirements	2	11/5	12/5		**Complete**
Project activity model	3	13/5	15/5		**Complete**
Project use case modelling	3	16/5	18/5		**Complete**
Creating a class diagram	2	19/5	20/5		**Complete**
Creating sequences diagram	2	21/5	22/5		**Complete**
Report	1	23/5	23/5		**complete**
Presentation	1	24/5	24/5		**complete**
Context diagram	2	25/5	26/5		**complete**

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Project requirements

☑ **Functional requirements**

There are many functional requirements for our application and they are as follows.

    a) functional user requirements:

1. The user should be able to log in to their account using their ID number and password.
2. The user should be able to check in to a gathering by scanning a QR code.
3. The user should be able to preview their Gathering Entry Permit.
4. The user should be able to sign-out from a gathering.

    b) functional system requirements:

5. The system must authenticate users based on their ID number and password.
6. The system must be able to recognize and verify QR codes.
7. The system must be able to generate and display Gathering Entry Permits.
8. The system must update attendance records when a user signs-out from a gathering.

☐ non-functional requirements

There are many non-functional requirements for our application as follows.
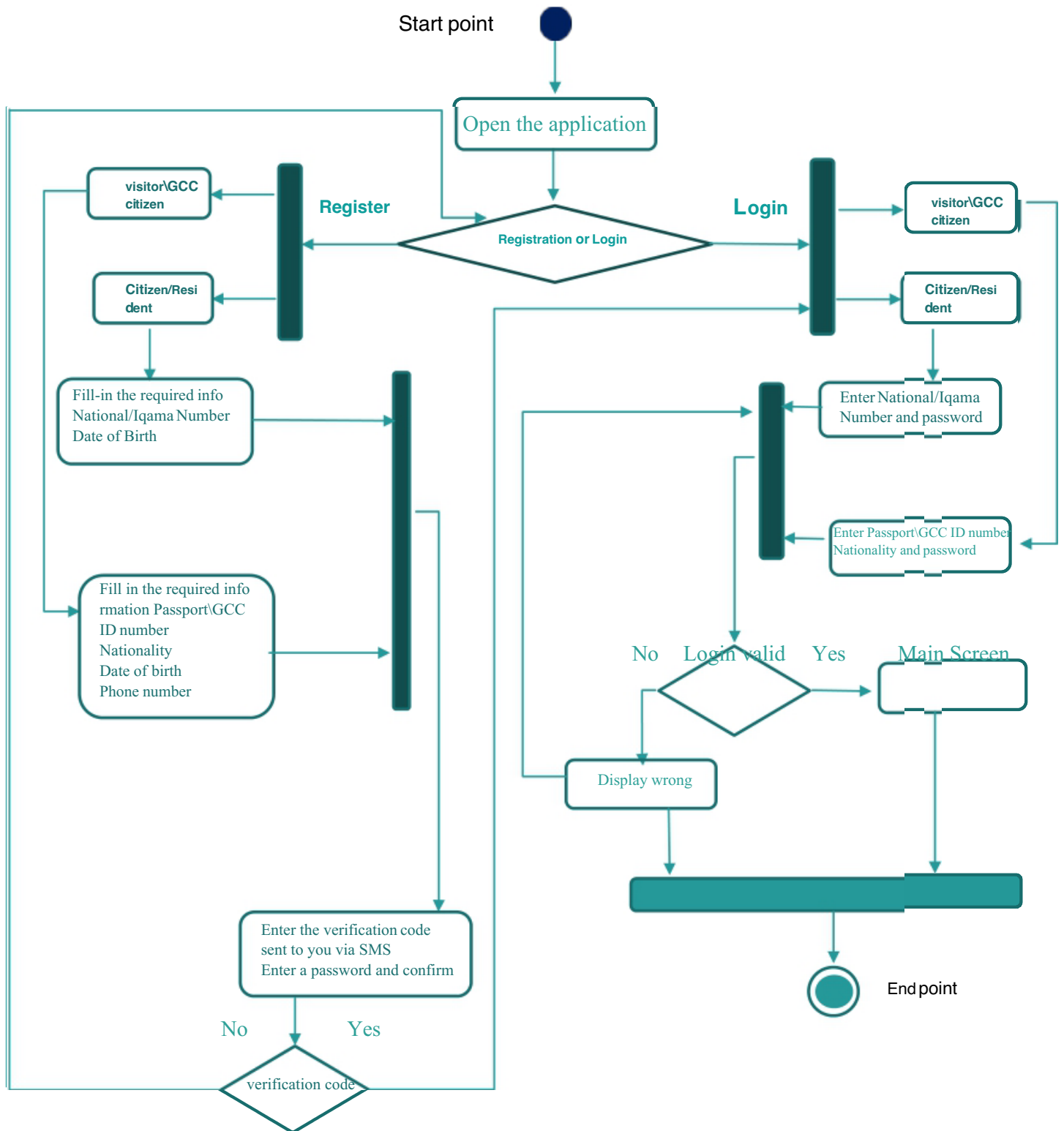
    a) Non-functional user requirements:

    1) Performance: The system must be able to handle a large number of users simultaneously without slowing down or crashing.

    2) Security: The system must be secure, with access controls and encryption to protect user data and prevent unauthorized access.

    3) Availability: The system must be available 24/7, with minimal downtime for maintenance or upgrades.

    4) Usability: The system must be easy to use and navigate, with clear and intuitive interfaces.

    b) Non-functional user requirements:

    1) Performance: The user expects the system to respond quickly to their actions, with minimal lag or delay.

    2) Security: The user expects their personal data to be kept secure and confidential, with appropriate access controls and encryption.

    3) Availability: The user expects the system to be available whenever they need it, without downtime or maintenance disruptions.

    4) Usability: The user expects the system to be easy to use and navigate, with clear and intuitive interfaces that require minimal training.

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Activity diagram

1. Registration or Login process

Start point

Open the application

Registration or Login

Register

Login

visitor\GCC citizen

Citizen/Resi dent

Fill-in the required info
National/Iqama Number
Date of Birth

Fill in the required info rmation Passport\GCC
ID number
Nationality
Date of birth
Phone number

visitor\GCC citizen

Citizen/Resi dent

Enter National/Iqama Number and password

Enter Passport\GCC ID number
Nationality and password

No   Login valid   Yes   Main Screen

Display wrong

Enter the verification code sent to you via SMS
Enter a password and confirm

No   Yes
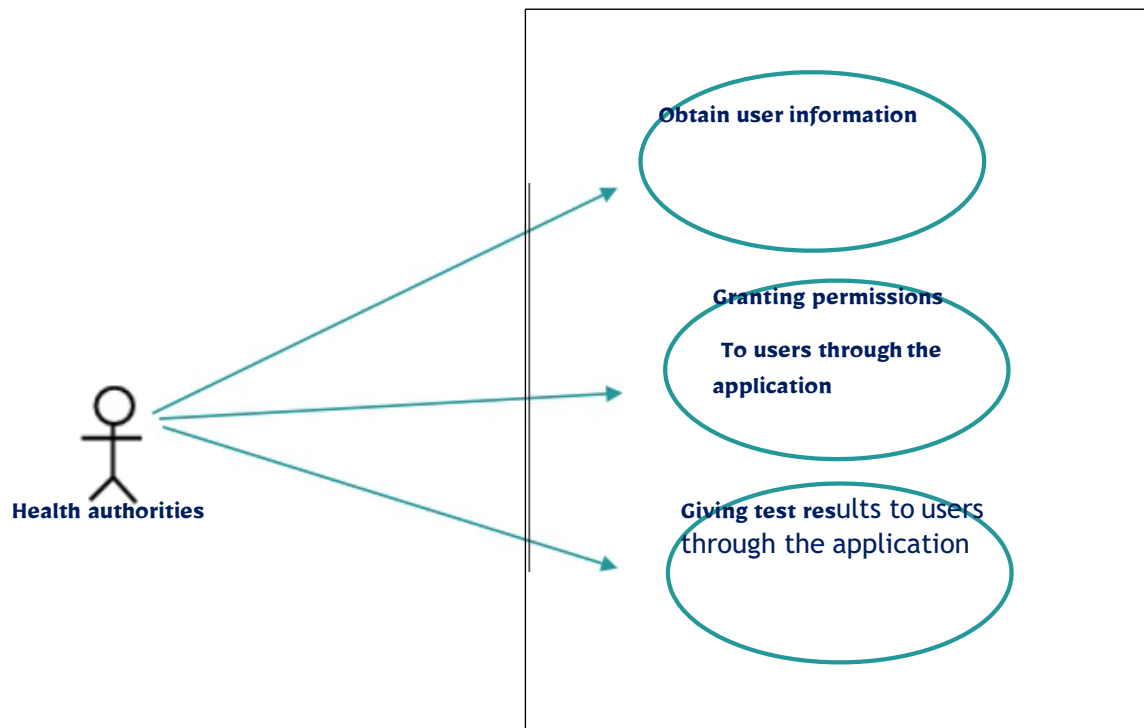
verification code

End point

Project Use Case Modelling

Use cases in the Tawakkalna system involving the role 'Users'
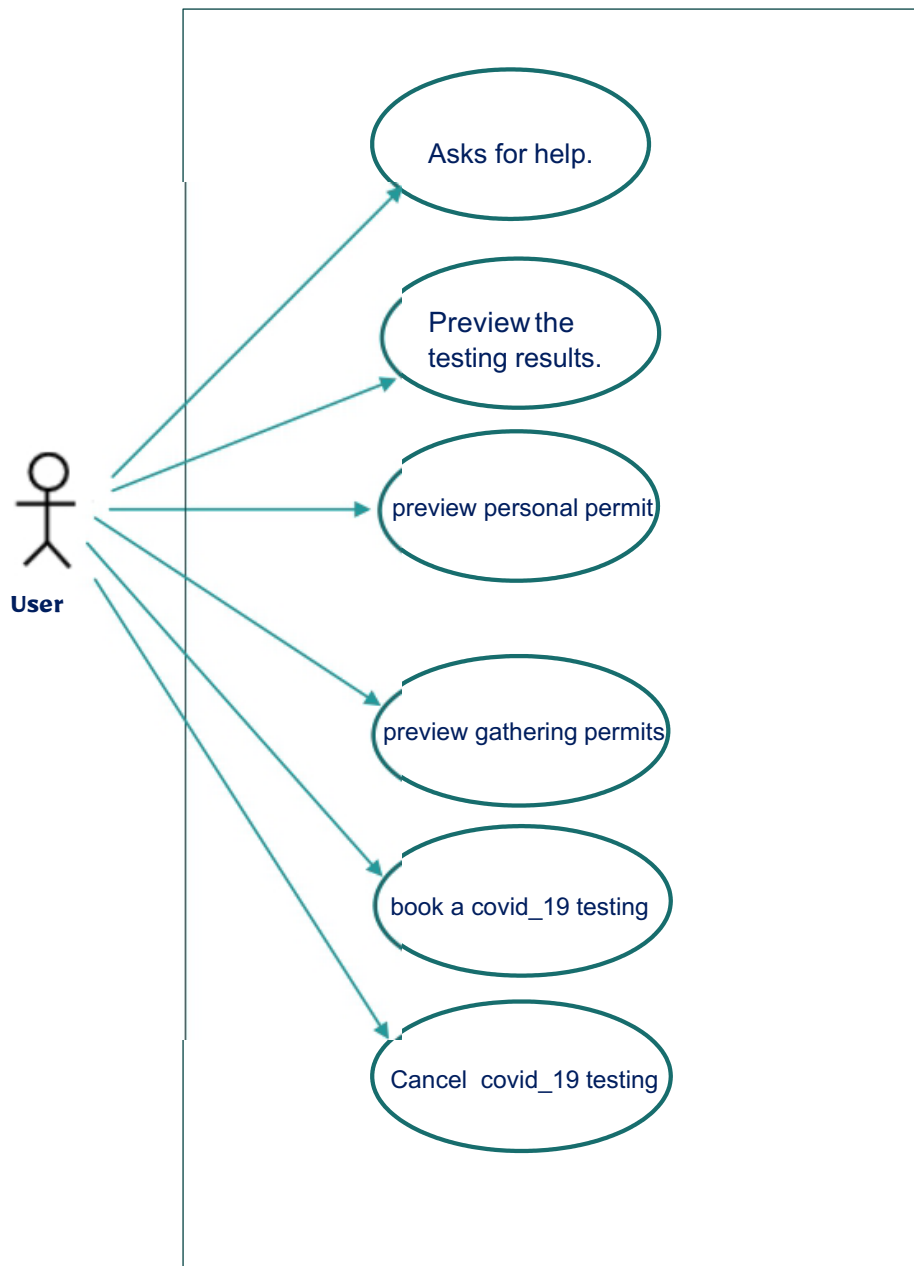
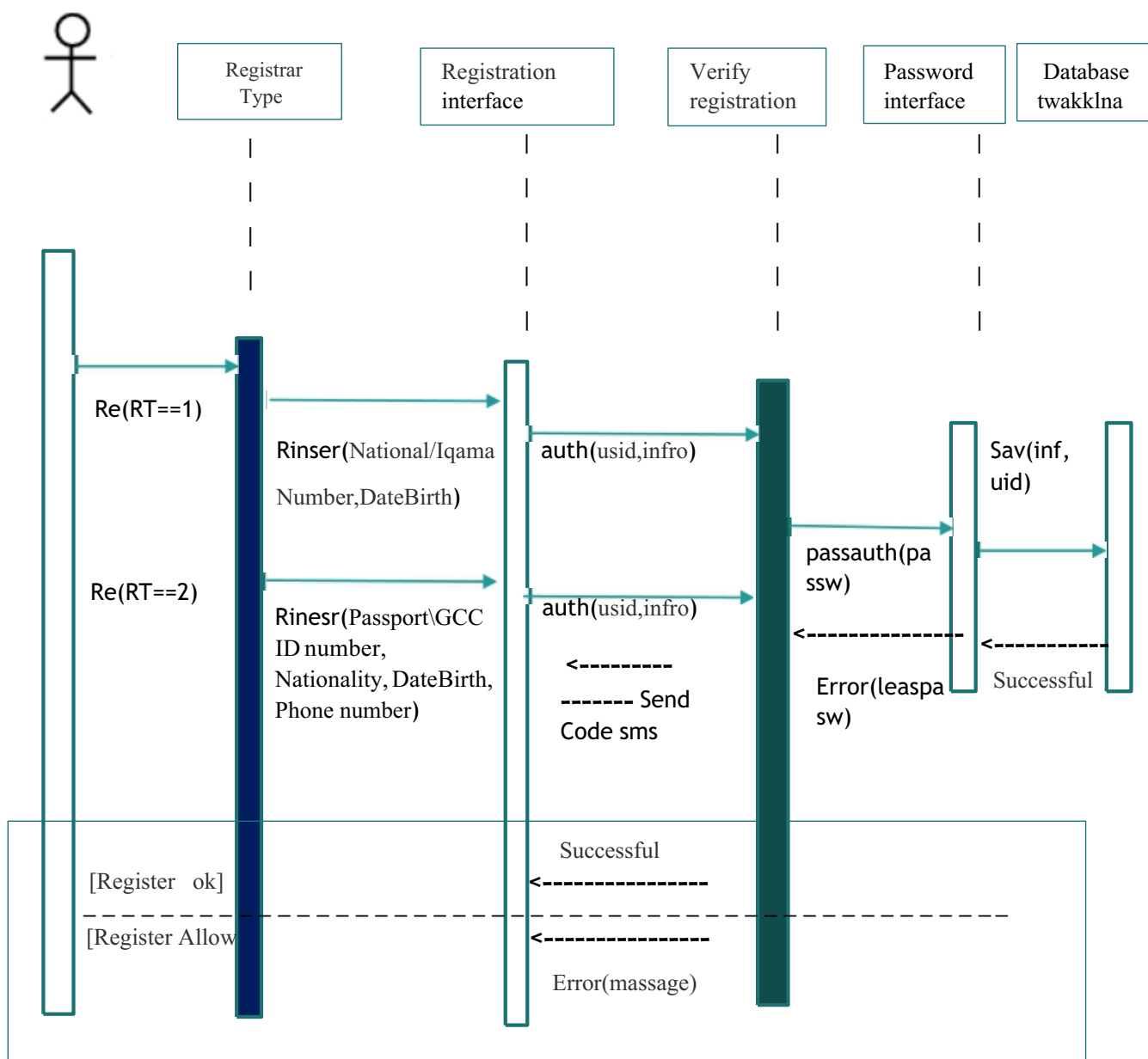**Use cases in the Tawakkalna system involving the role 'Health authorities'**

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U-P-R: Preview the testing results.

Actors	Users, System Tawakkalna
Description	The user opens the "Tawakkalna" application and logs in. If a user wishes to get a test result, the user goes to the 'Coronavirus test results' section of the app. The Tawakkalna application retrieves the results of user tests from the competent health authority. Tawakkalna application shows the user the results of the user test.
Data	Test results
Stimulus	" The app issues an order on behalf of the user through their phone. The results provided to the user through the app are directed by the relevant health authorities."
Response	No response.
Comments	The user must have an account in the Tawakkalna application.

U–T–P: Take permits	
Actors	**Users, System Tawakkalna**
Description	The user opens the "Tawakkalna" application and logs in. If he wants to obtain a permit to enter a compound, he goes to the permits section, then submits a permit application. The application sends the request to the health centers and the centers that respond with acceptance or rejection, and then gives it to the user. .
Data	Test results, User data
Stimulus	"The application issues a command on behalf of the user through their phone. The permits submitted to the user through the application are directed by the competent health authorities."
Response	The request is under processing.
Comments	The user must have an account in the Tawakkalna application.

Creating Sequence Diagram

Sequence diagram for Register

Creating Class Diagram

User_regiseter

- National_Iqama_Number:int
- Day_Birth:date
- Passport_GCC_ID_number:int
- Nationality:string
- PhonNumber:int
-password:string
-id_process:int

+Adregi_natIq(Nat_Iqa_Num int,D_pirth date ,pass string)
+Adregi_Paspt(Paspt_GC_ID_nu int, Nati string, D_Birth date, PhNu int, pass string)
+delUsevist(string Nat_Iqa_Num)
+delUse Paspt(PasptGC_ID_nu int)

Services

-servId:int -s

ervName:string

+addserv(serid int,serNname string)

+deletServ(serid int)

GetServes

-idproc:Competent _authorities

servId:Services

iduser: US_regis

+Checkintoagathering (uid int,Cathid int,QR ,served int)

+PrevGathEntPer(uid int ,Servid int ,Cathid int)

+ ChoutfGather(uid int ,Servid int ,Cathid int)
+GatheringPermits(uid int ,served int)

M   N   N

Verification_regester
-idvereg:int

+sendna_paC(Code string,usid)

+ResvCit()

Competent _authorities

-NameCA:String

-idCAu:string -lo

caC_auth:string

+addCau(name string,id string,location string)

+delCau(idCau string)

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