Assuit university

Faculty Of Computer And Information Science

Graduation Project Book

HX Wallet

Contents

1. Project initiation:

1.1.1. Team members and supervised

Project name:

HX Wallet

Team members:

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Entesar Atef Abd elrhman omar

Doaa Ahmed Salman Ahmed

Doaa Saad-Eldein Yassin

Yousef Elsaied Yousef Abdallah

Mohamed Mahmoud Abdeltawab Yousef

Supervised By:

DR/Ebrahim El Semman

1.1.2. Introduction

The medical prescription is the means in which the doctor presents his prescription to the patient, in which he presents all the details of the treatment, including the name of the treatment, the dose to be taken, and the dates for taking the treatment

The presence of the prescription with the patient makes it easier for him to recover from the disease because he does not follow the instructions inside.

And because the medical prescription is very important in the patient's recovery journey, our project will focus on the prescription, but it is an electronic prescription.

1.1.3. Problem definition

- Imagine going to the doctor and taking his prescription, and after disbursing the treatment, you needed to repeat the medicines again, but unfortunately you lost the prescription or going to doctor and he asking you if you take a specific medicine to take it into account when writing a new prescription to you.
- So we trying to solve the lose of the prescription from patients.
- We are trying to solve this problem in our project through making a website that contain all patient prescriptions and tests

1.1.4. Litrerature overview

- This is not the first idea of creating an electronic prescription, there have been many attempts to create websites with the same idea
- for example NHS Digital website has an electronic prescription service in it’s services.
- But unfortunately this services not exist in Egypt .

1.1.5. Objectives

- We aim to facilitate the patient's access to his old prescriptions,tests,x-rays and to cancel the idea of the paper prescription because of its many defects such as loss or damage.
- On the other hand, we aim to help the doctor know the medications that the patient is currently taking, and this will facilitate what he can put in his new prescription so as not to conflict with the current medications.
- in addition to cancel the paper tests results that printed on a papers and always patients lose it .
- for this reasons we made our website to help all of doctor ,patient,pharmacy ansd test and x-ray labs

1.1.6. Stakeholders

- We know previously that the stakeholders are those who are directly or indirectly affected by the project,so here our stakeholders are:
- The patient
- The doctor
- The pharmacy
- The test lab
- The x-ray lab

1.1.7. Scope

2. Our project is a website that helps you to keep your medical history in your profile, all your medicine ,all your tests, all your X-rays in electronic page and get rid of all papers you may hold or lose them.

2.1.1. Constraints

To use our website you need the following:

- A mobile phone,labtop,or computer device to acsses the website through it
- An internet connection
- A browser that reach the website through

3. Planning &Requirements:

3.1.1. Cost and budget

- It is an educational project that we have done because it is one of the requirements for graduation and obtaining a graduation certificate and a bachelor's degree. It is also a very suitable start to prepare us for the work environment.
- So there no development cost or cost for equipment

3.1.2. Risk list

- Server failure
- Internet failure
- The absence of mobile or labtop to browse through it

3.1.3. Requirements

functional requirements

- For all users:
  - Sign up:when the user enter the site for the first time he enter all his information and submit the information so he has a profile now and he can enter to it .
  - Login to the site:the user enter the website and enter his user name and password and reach to his page.
- For the patient:
  - **show his profile**:when the patient login to the site he show his profile

that contain all his prescriptions and tests and x-rays.

- For the doctor:
  - Show patient profile
  - Add new prescription

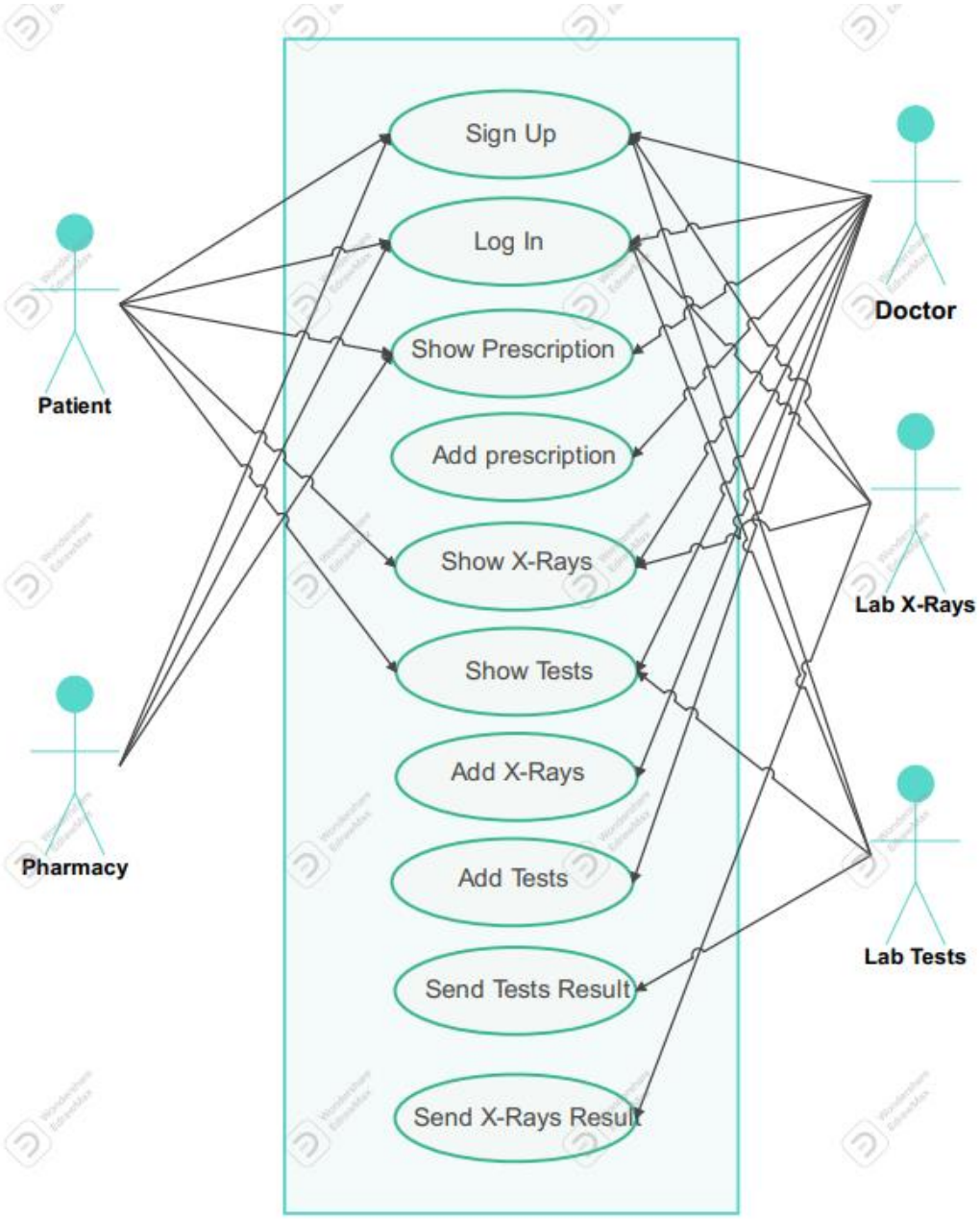
- For the pharmacy:
  - Show prescriptions of the patient
  - Mark the medication the patient has taken from them
- For test and x-ray lab:
  - Add tests to patients
  - Show all patient tests required from him

nonfunctional requirements:

- For the patient:
    - Search on patient profile for prescription or tests
- For the doctor:
    - Search on patient profile for prescription or tests
- For the pharmacy:
    - Search for a specific medicine in a prescription
- For test and x-ray lab:
    - Search for specific test

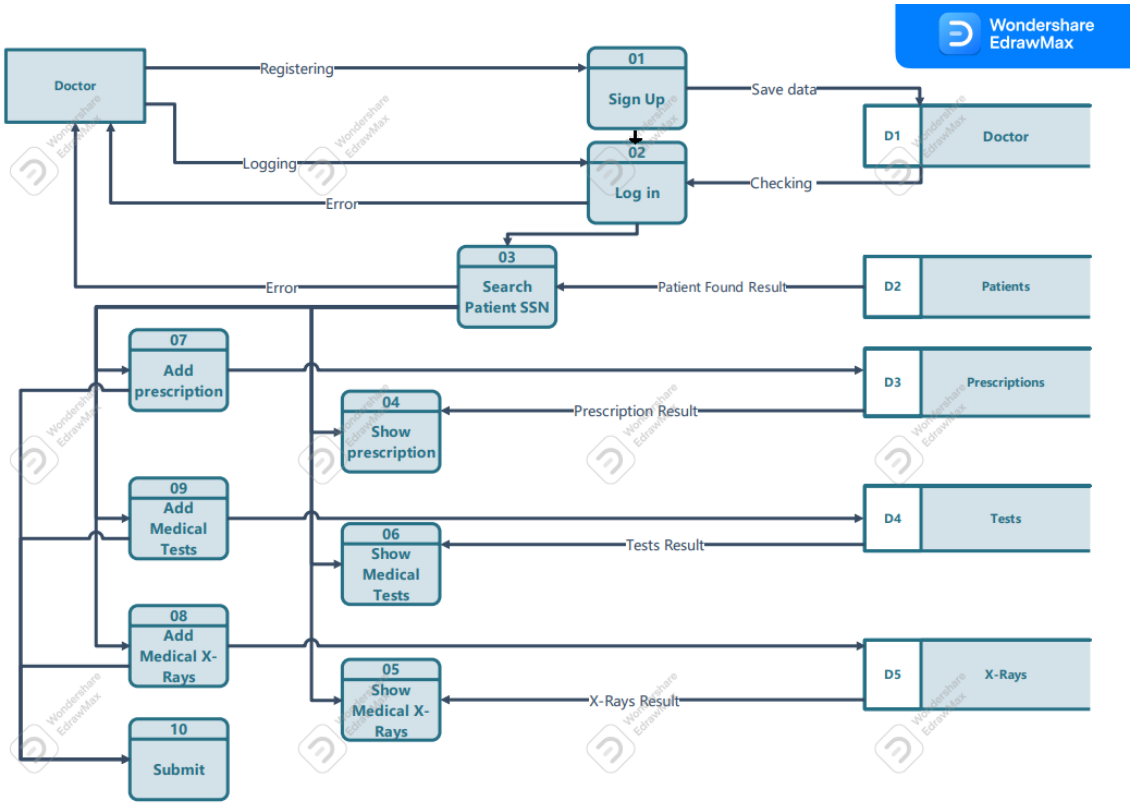
4. Analysis and Design:

4.1.1. Use case

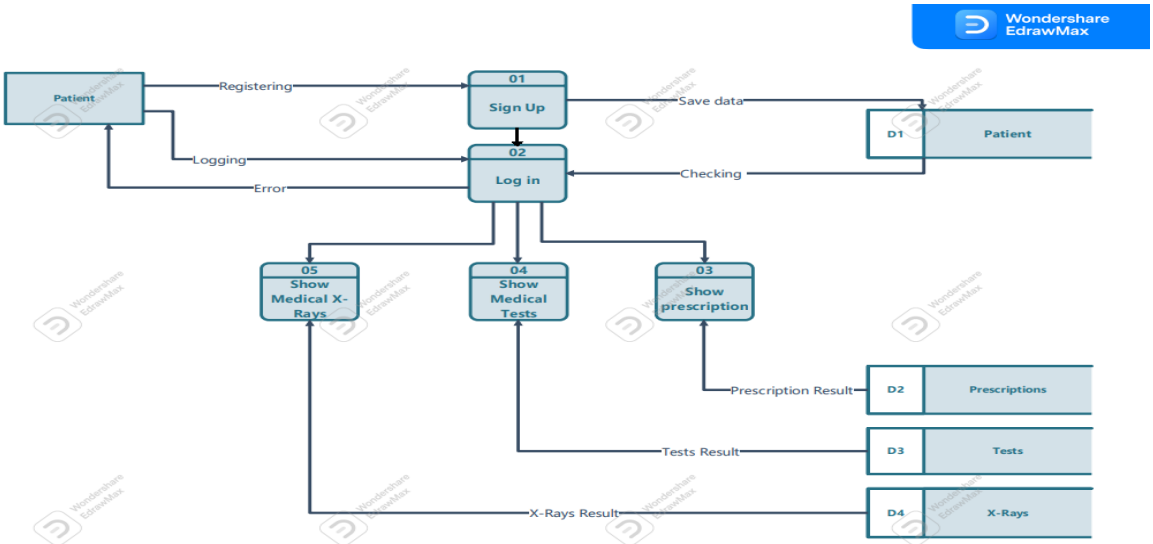


4.1.2. Data Flow Diagram

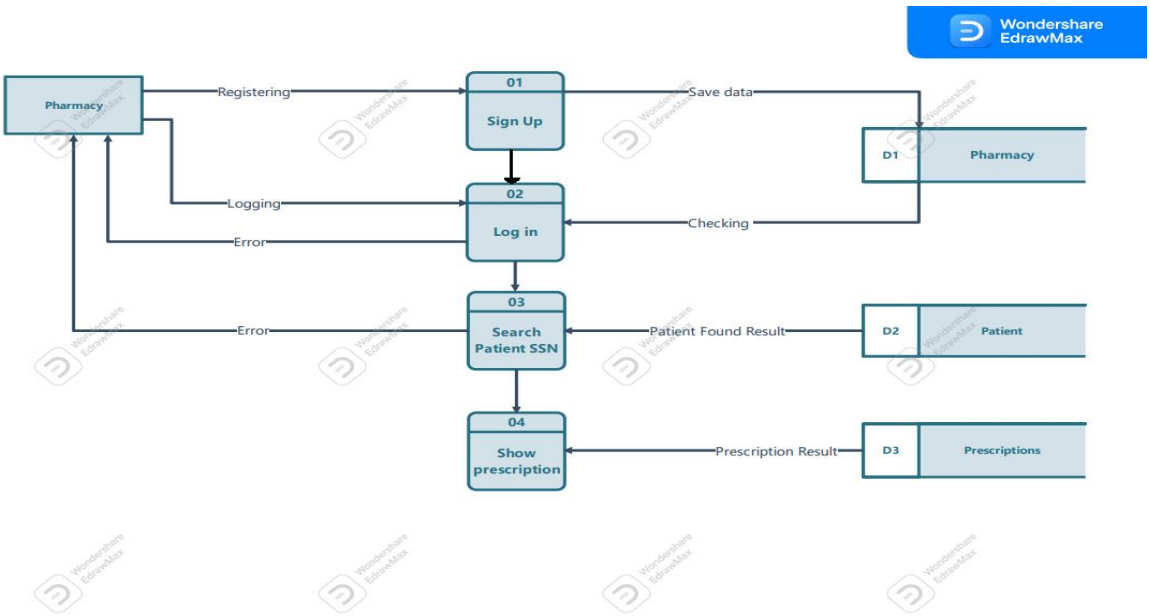
For doctor



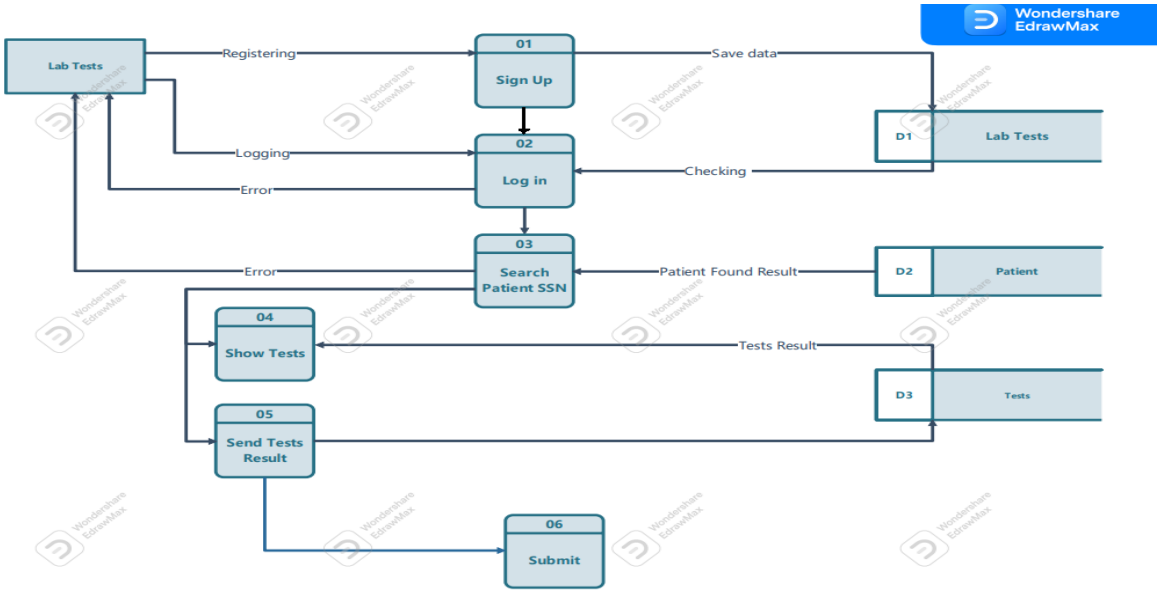
For patient



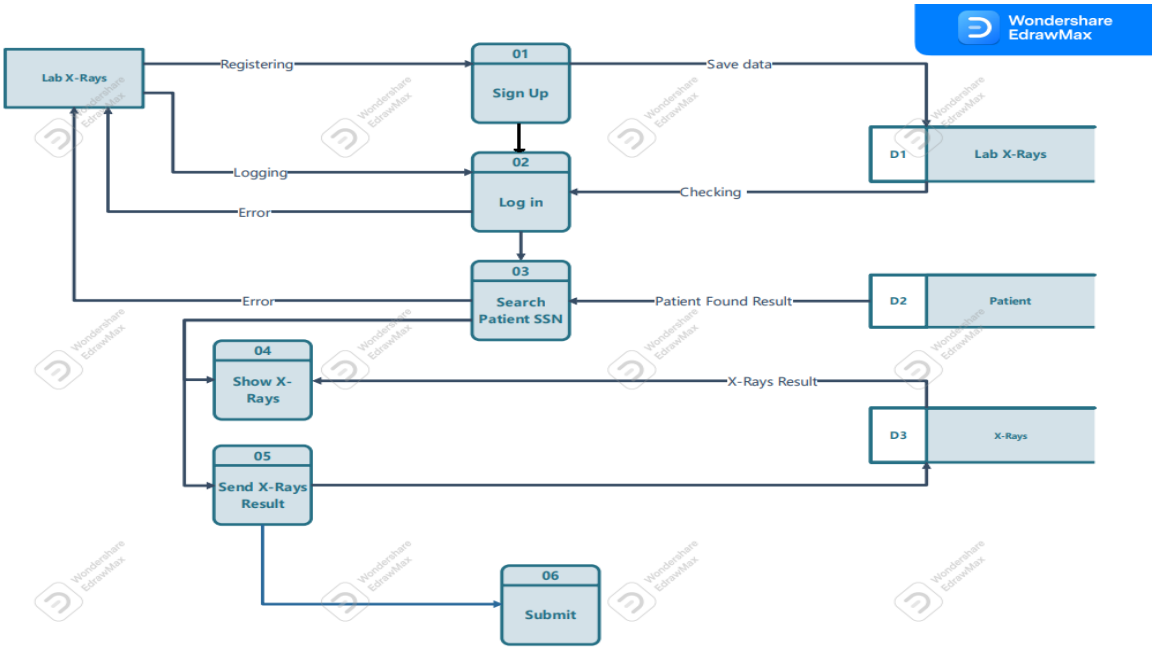
For pharmacy



For test lab

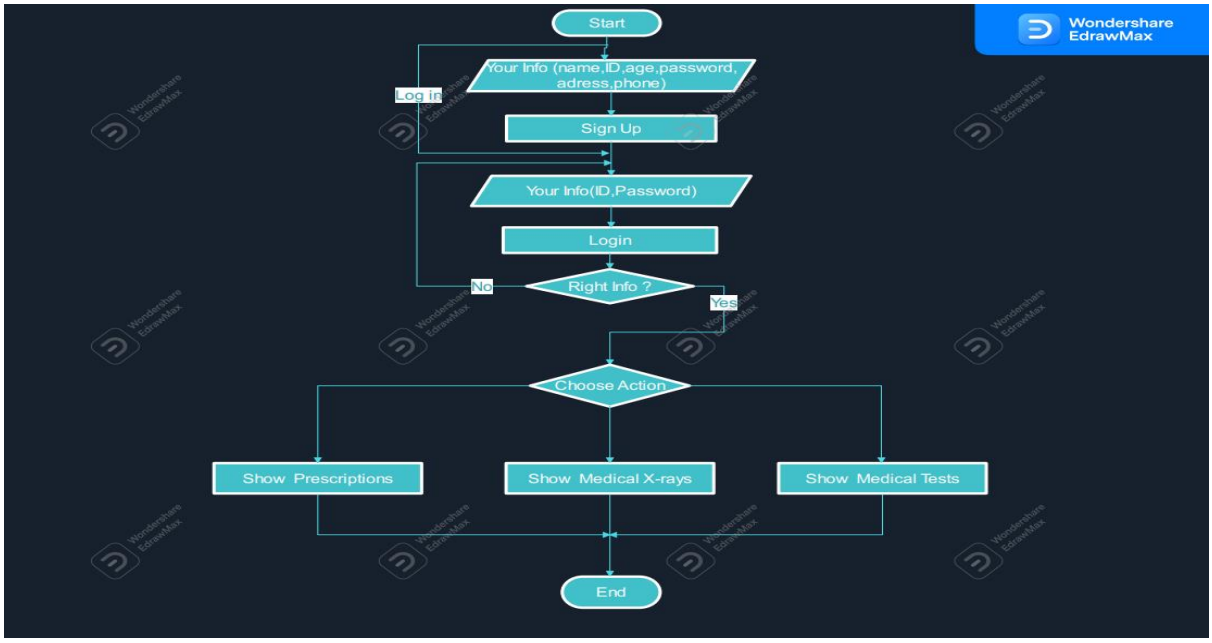


For x-ray lab

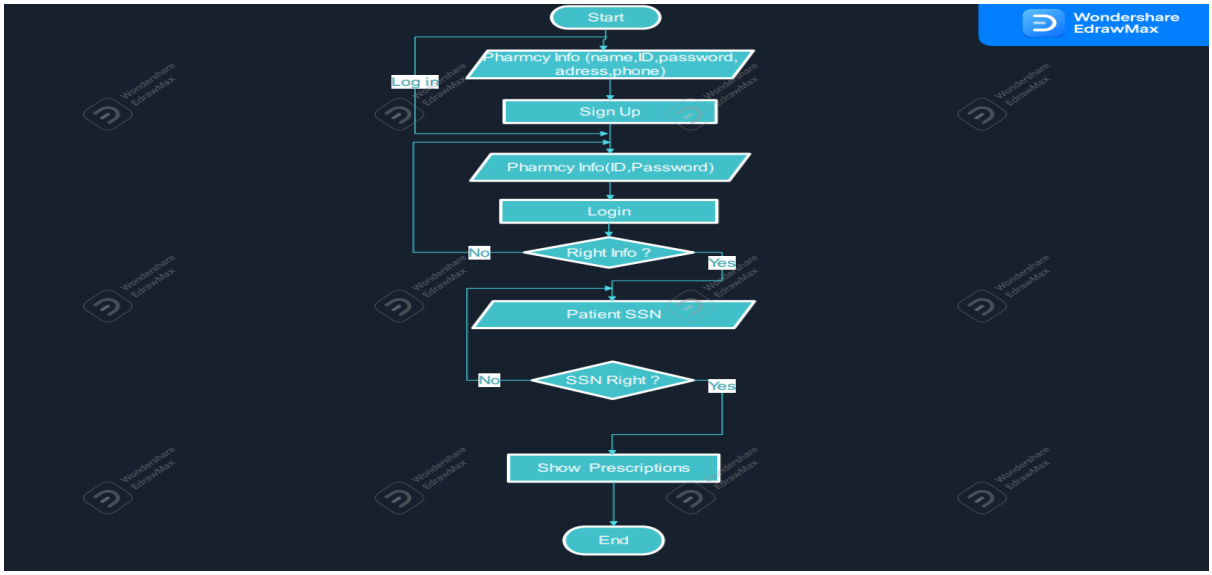


4.1.3. Flow Chart

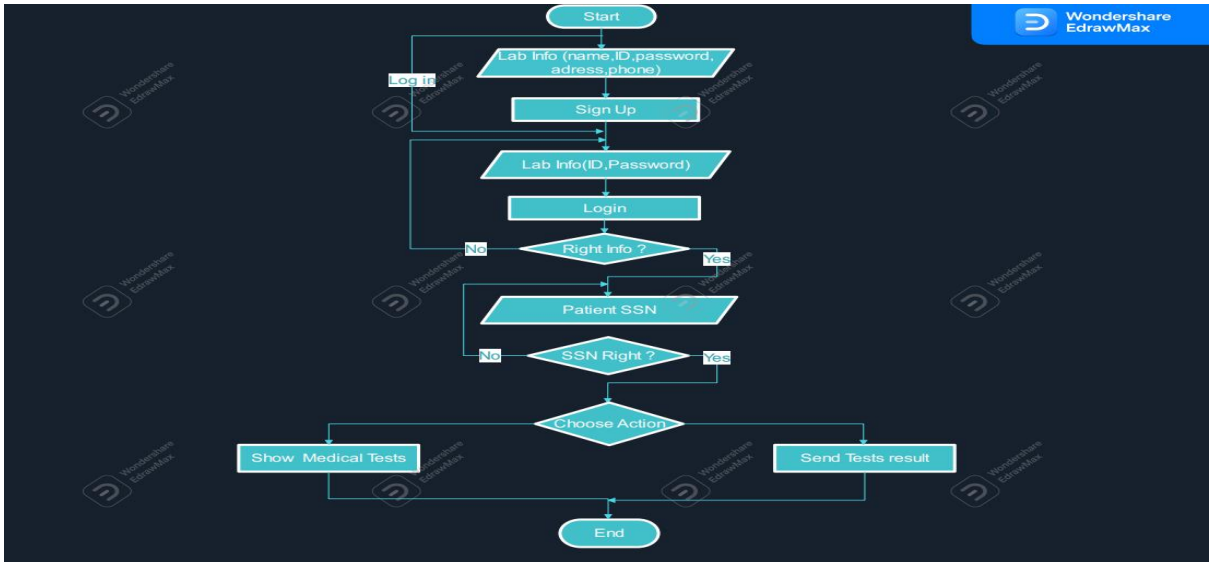
For doctor



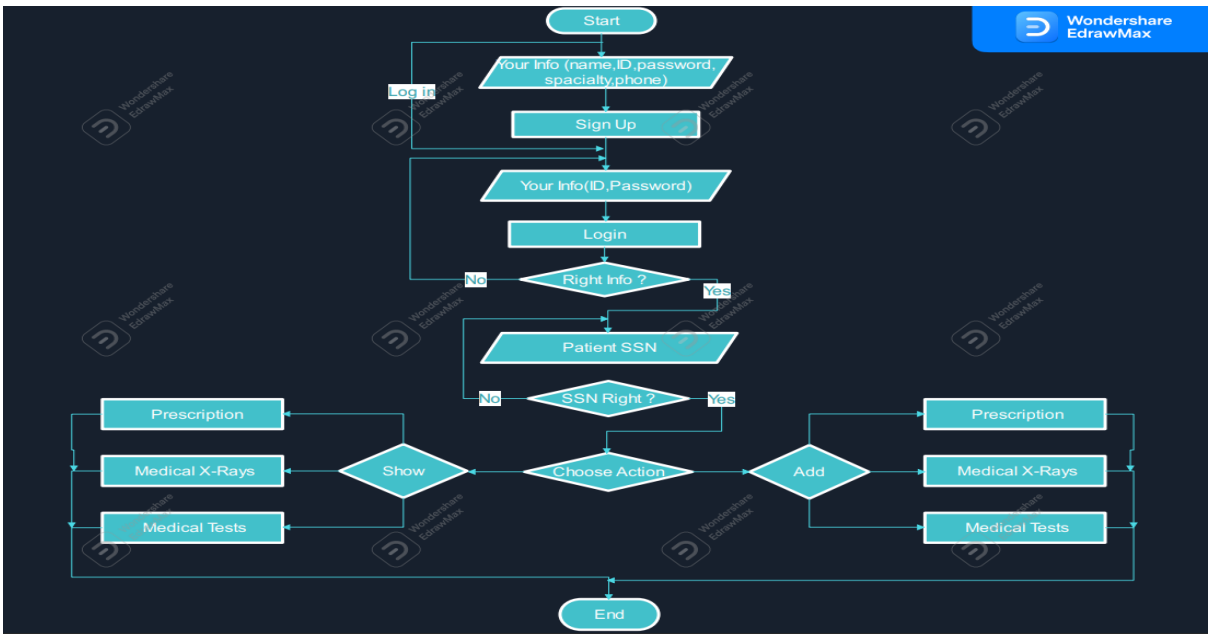
For patient



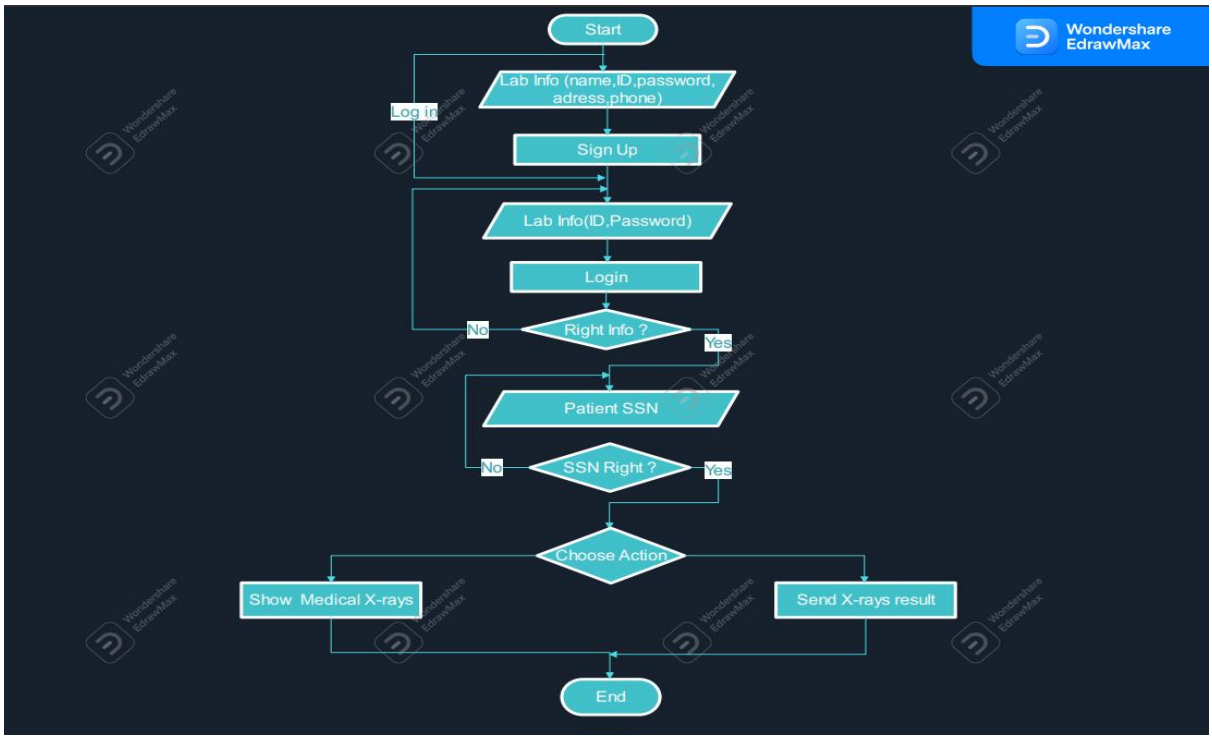
For pharmacy



For test lab

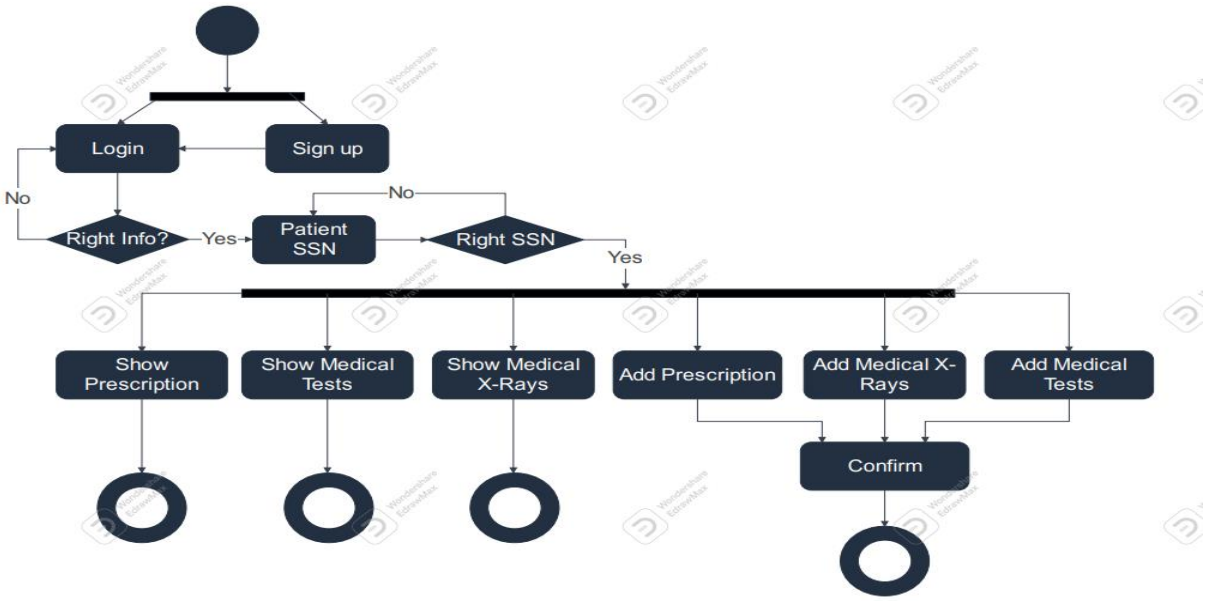


For x-ray lab

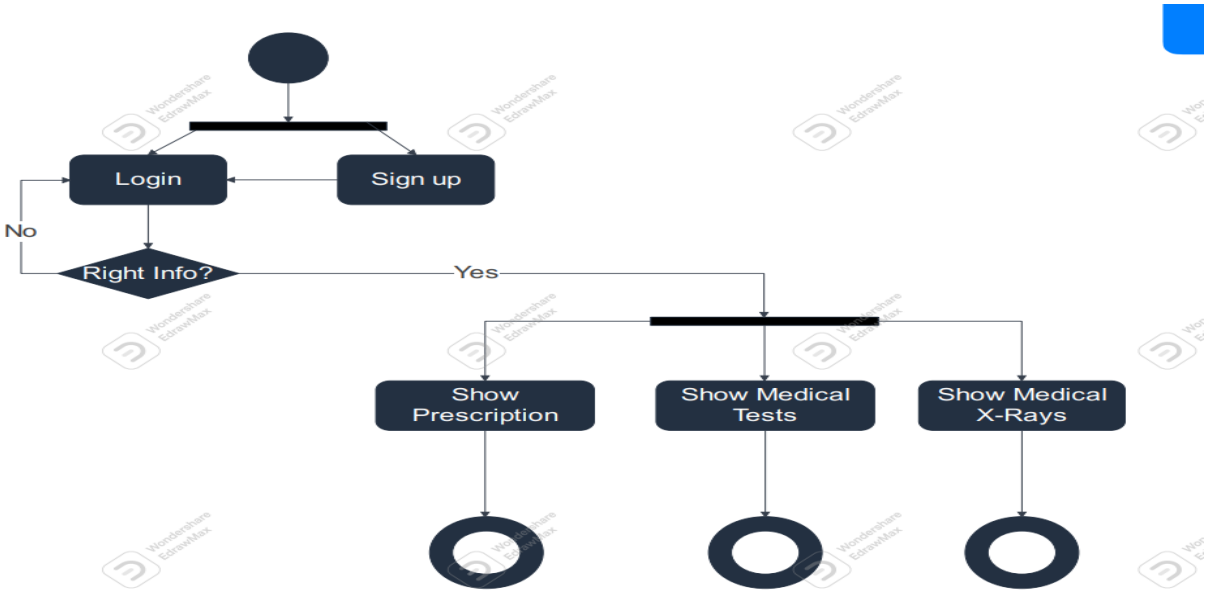


4.1.4. Activity

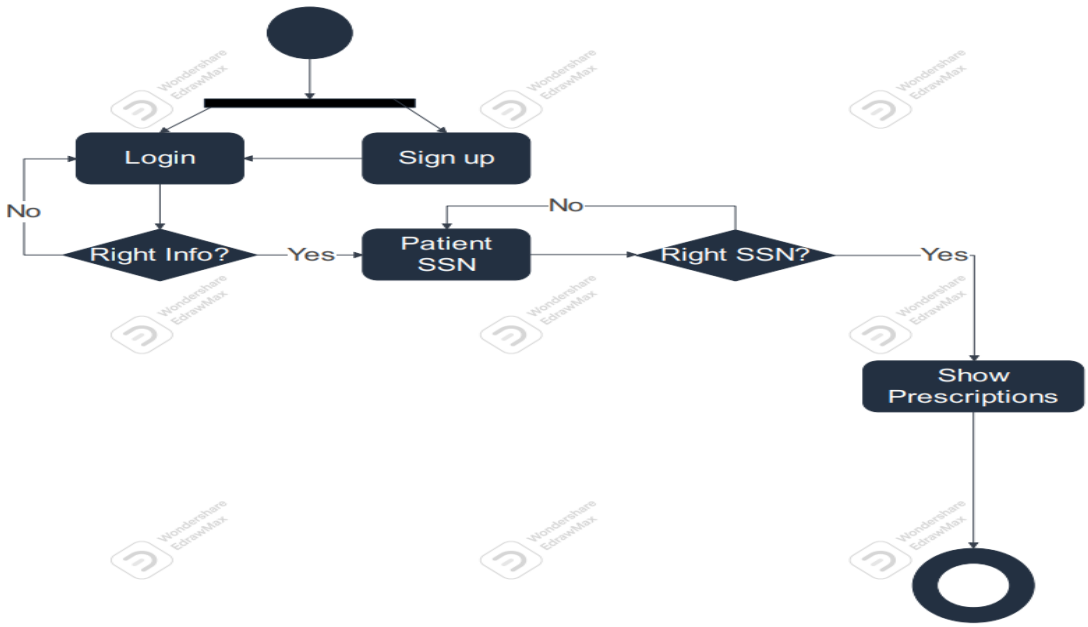
For doctor



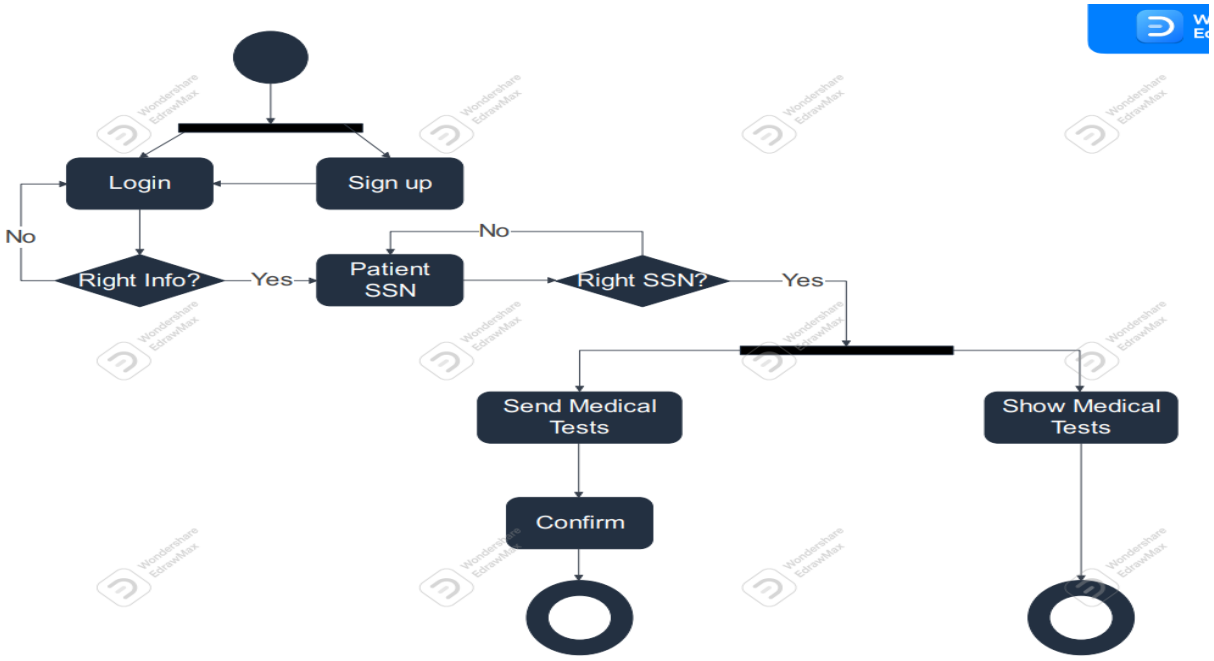
For patient



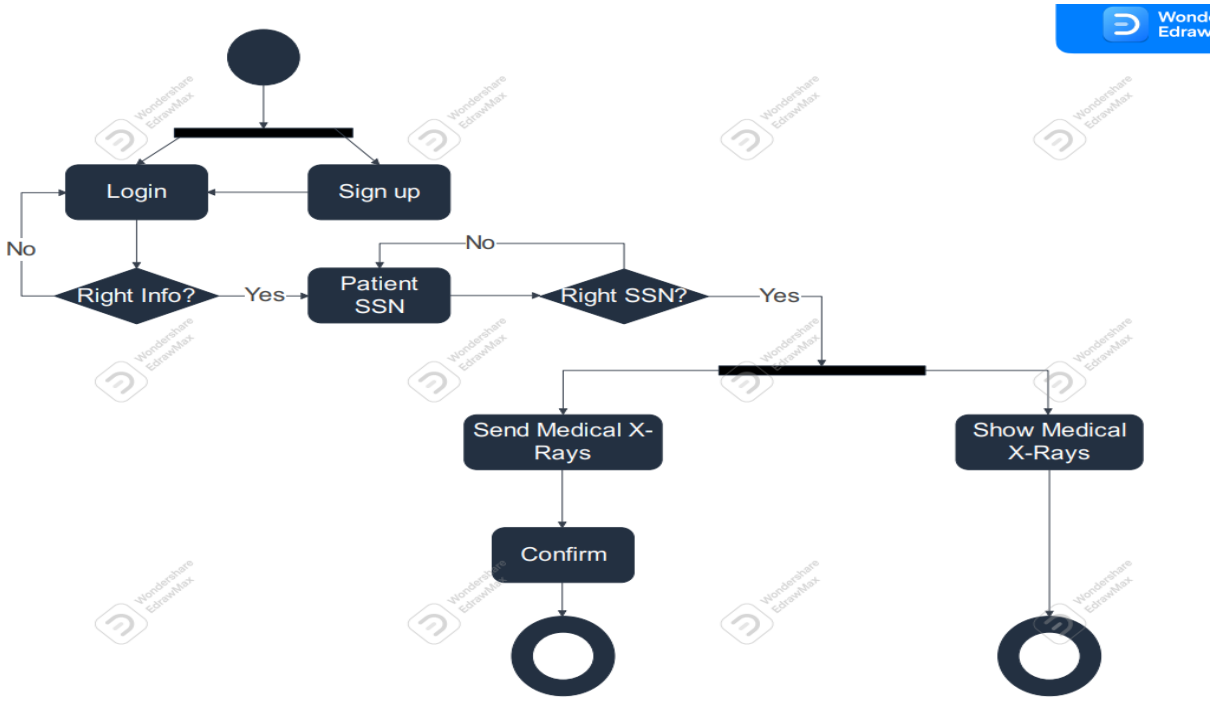
For pharmacy



For test lab

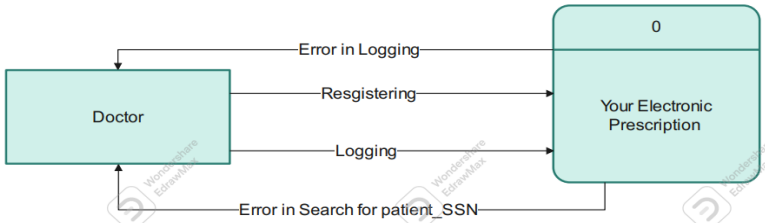


For x-ray lab

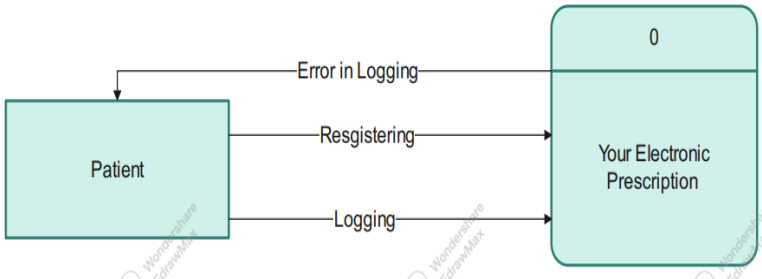


4.1.5. Context

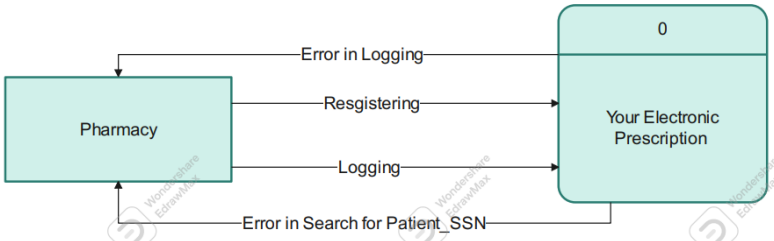
For doctor



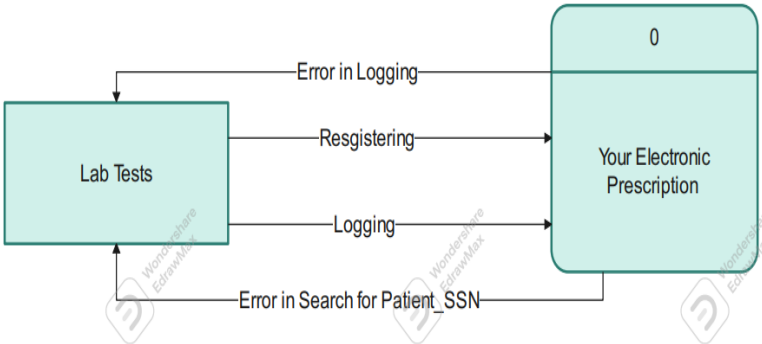
For patient



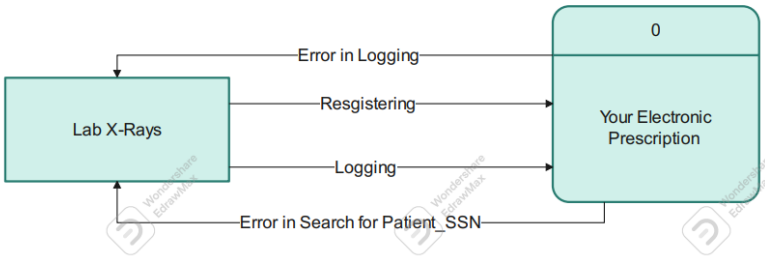
For pharmacy



For test lab



For x-ray lab

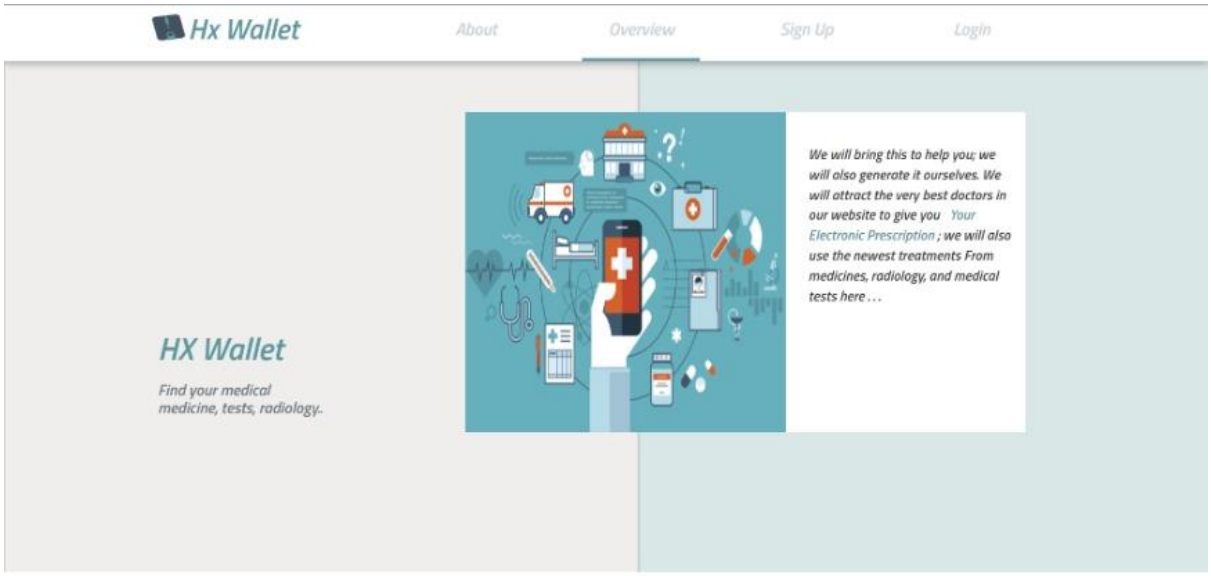

0
Error in Logging
Lab X-Rays
Resgistering
Your Electronic Prescription
Logging
Error in Search for Patient_SSN

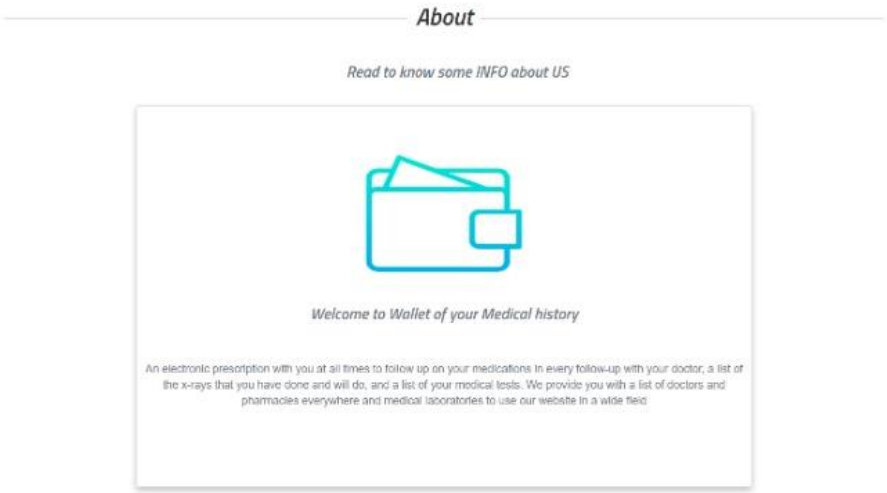
5. Implementation:

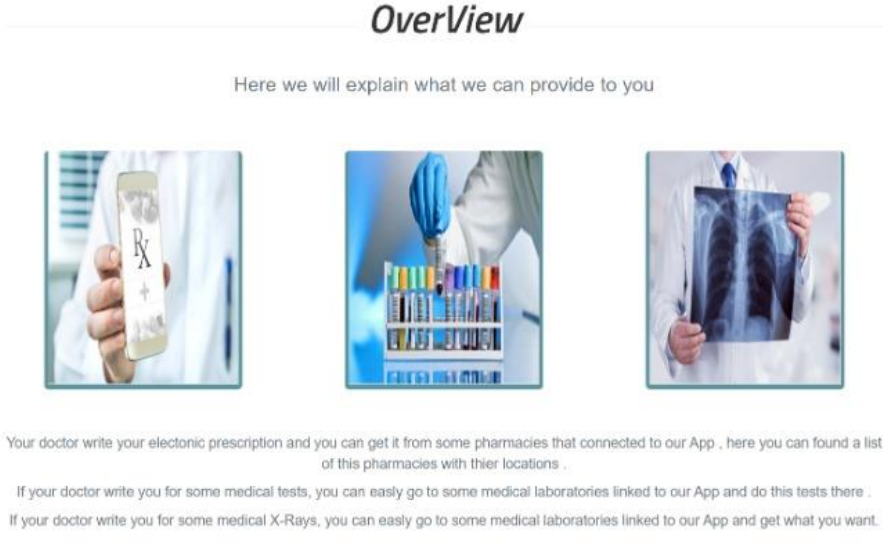
5.1.1. Development requirements

- 7 developers:
  1. 3 front end
  2. 4 back end
- In Front end:we used :
  1. HTML,CSS
  2. Javascript,typescript
  3. Angular framework
- In backend:
  1. .net
  2. C#

5.1.2. Manual User

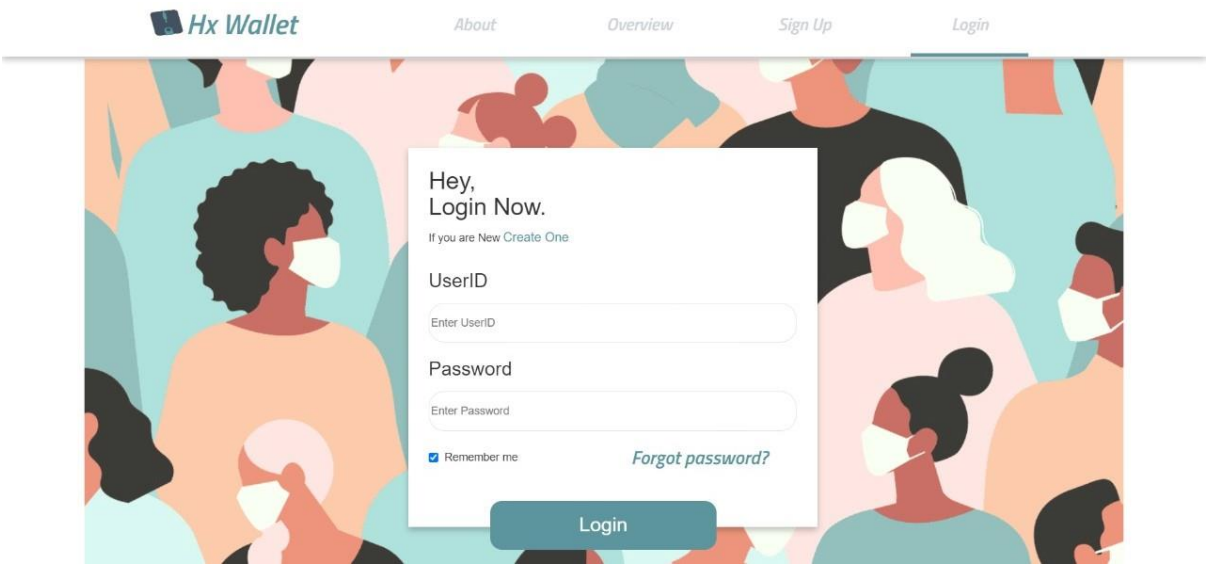






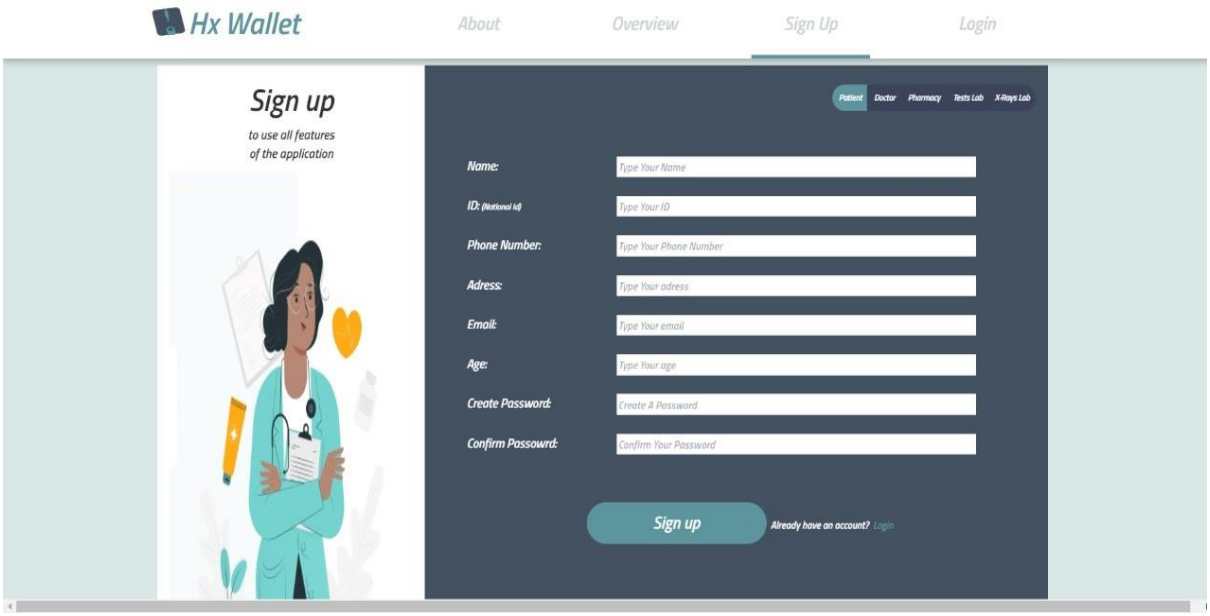
To see all features included in our website you must login to the site

When you click here it will lead you to this form

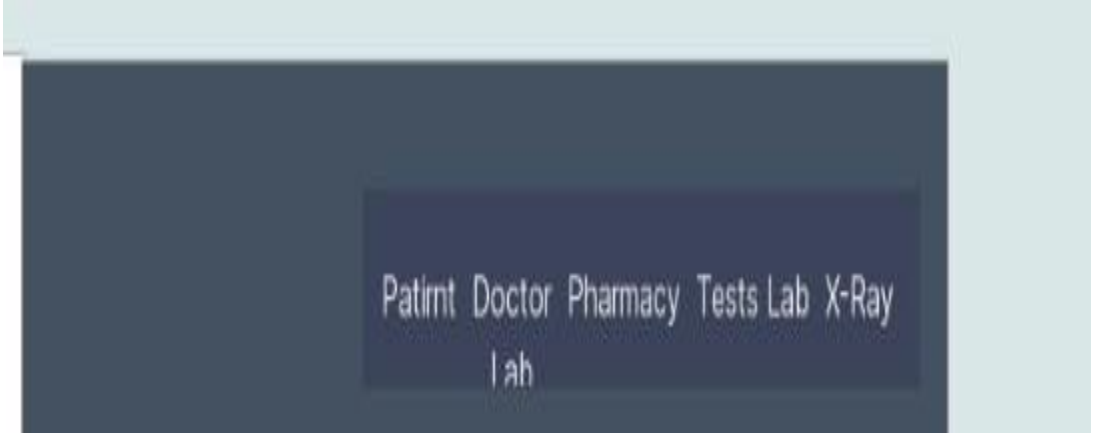


What if you don’t have an email in the website,you have to create an email

It will direct you to signup form



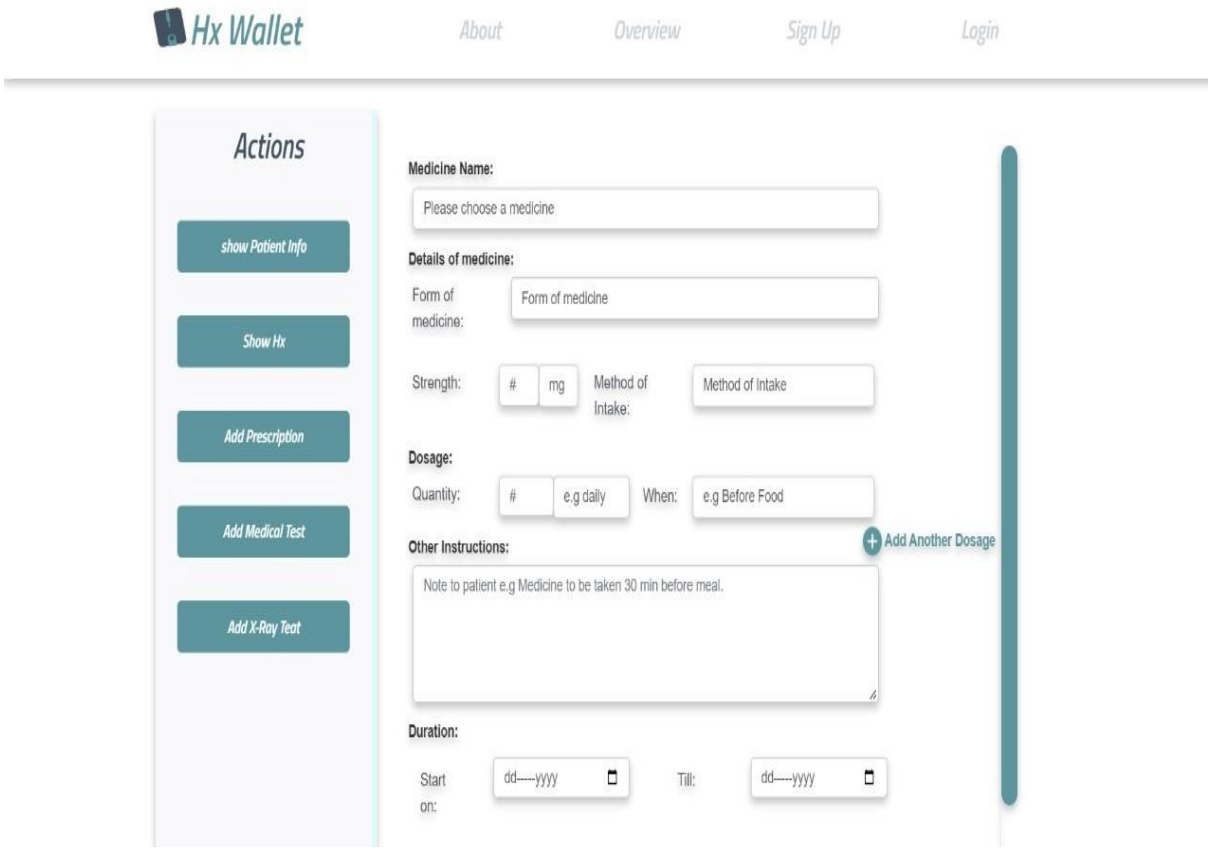
Choose what type of users is you

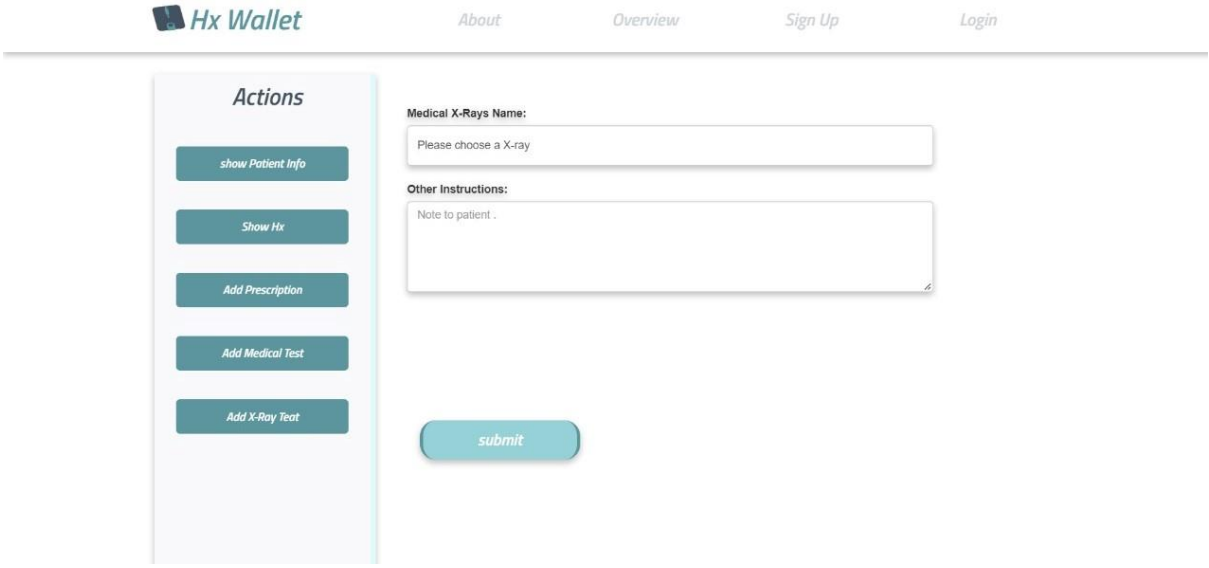


Each ype of users have a specific form fill it and click sign up

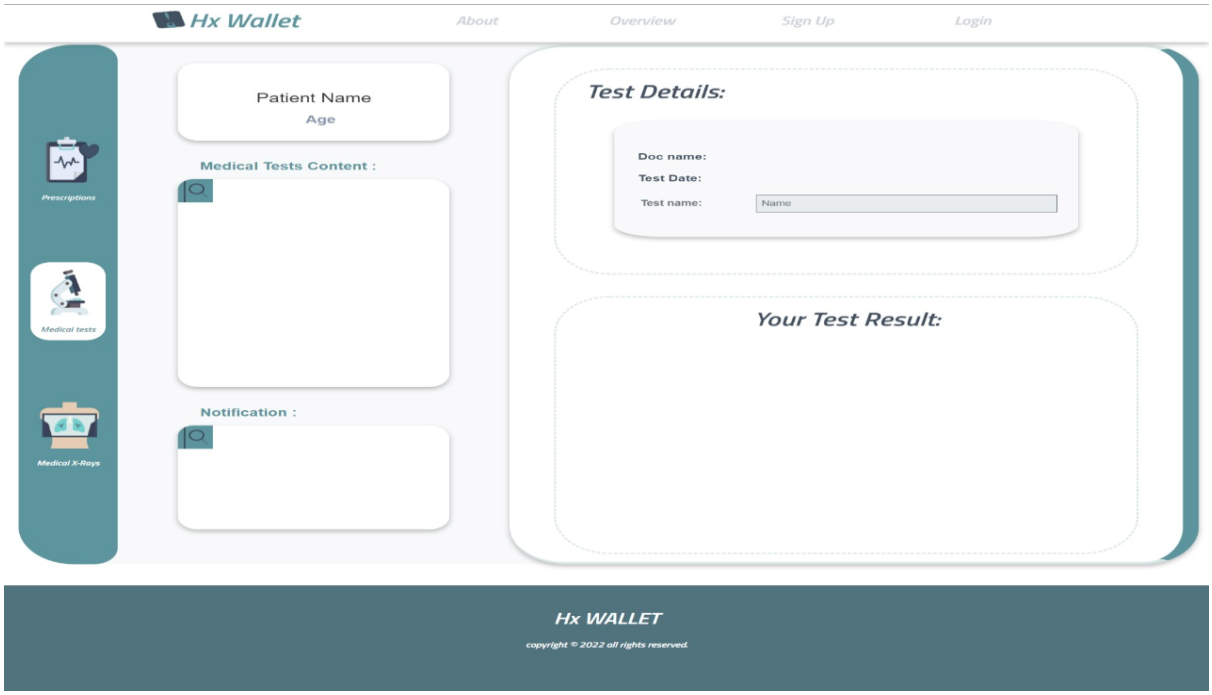
By entering your info you are loged in and you directed to one of pages

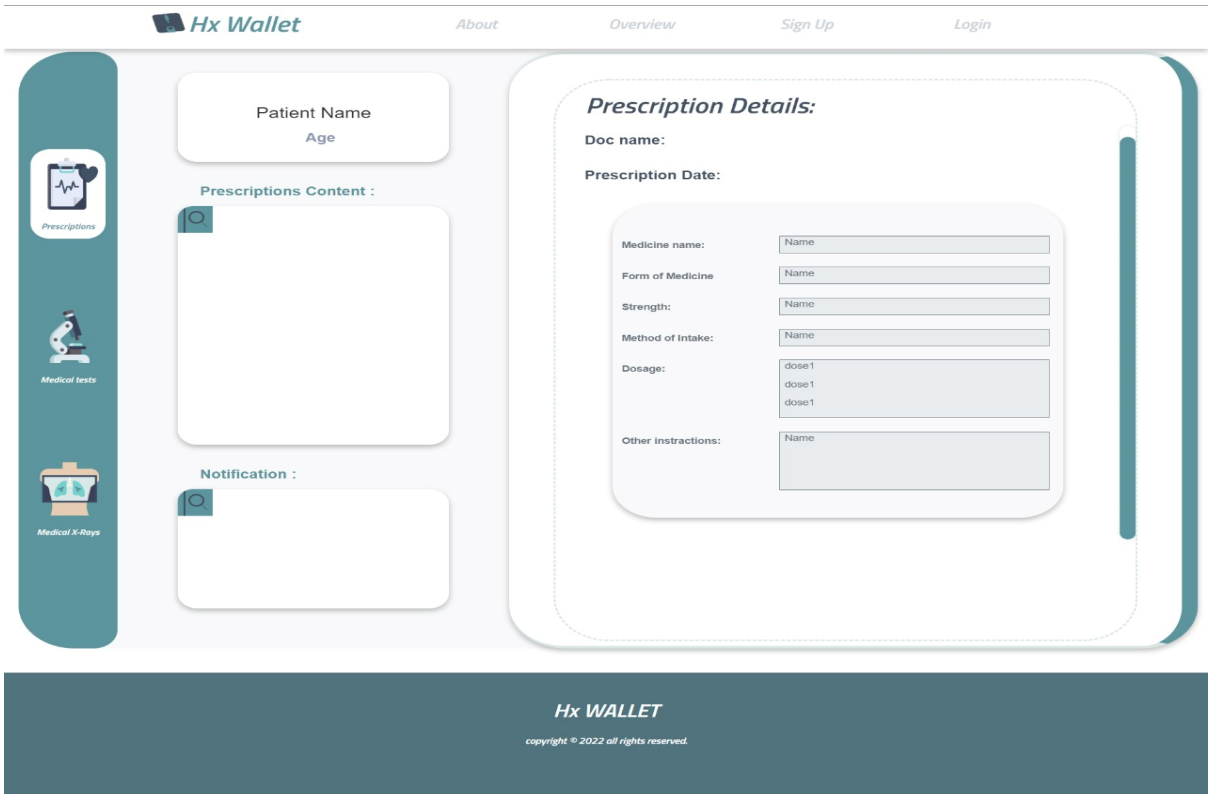
- Doctor page


Hx Wallet
About
Overview
Sign Up
Login
Actions
show Patient Info
Show Hx
Add Prescription
Add Medical Test
Add X-Ray Teat
Medicine Name:
Please choose a medicine
Details of medicine:
Form of medicine:
Form of medicine
Strength:
#
mg
Method of Intake:
Method of Intake
Dosage:
Quantity:
#
e.g daily
When:
e.g Before Food
Add Another Dosage
Other Instructions:
Note to patient e.g Medicine to be taken 30 min before meal.
Duration:
Start on:
dd-----yyyy
Till:
dd-----yyyy

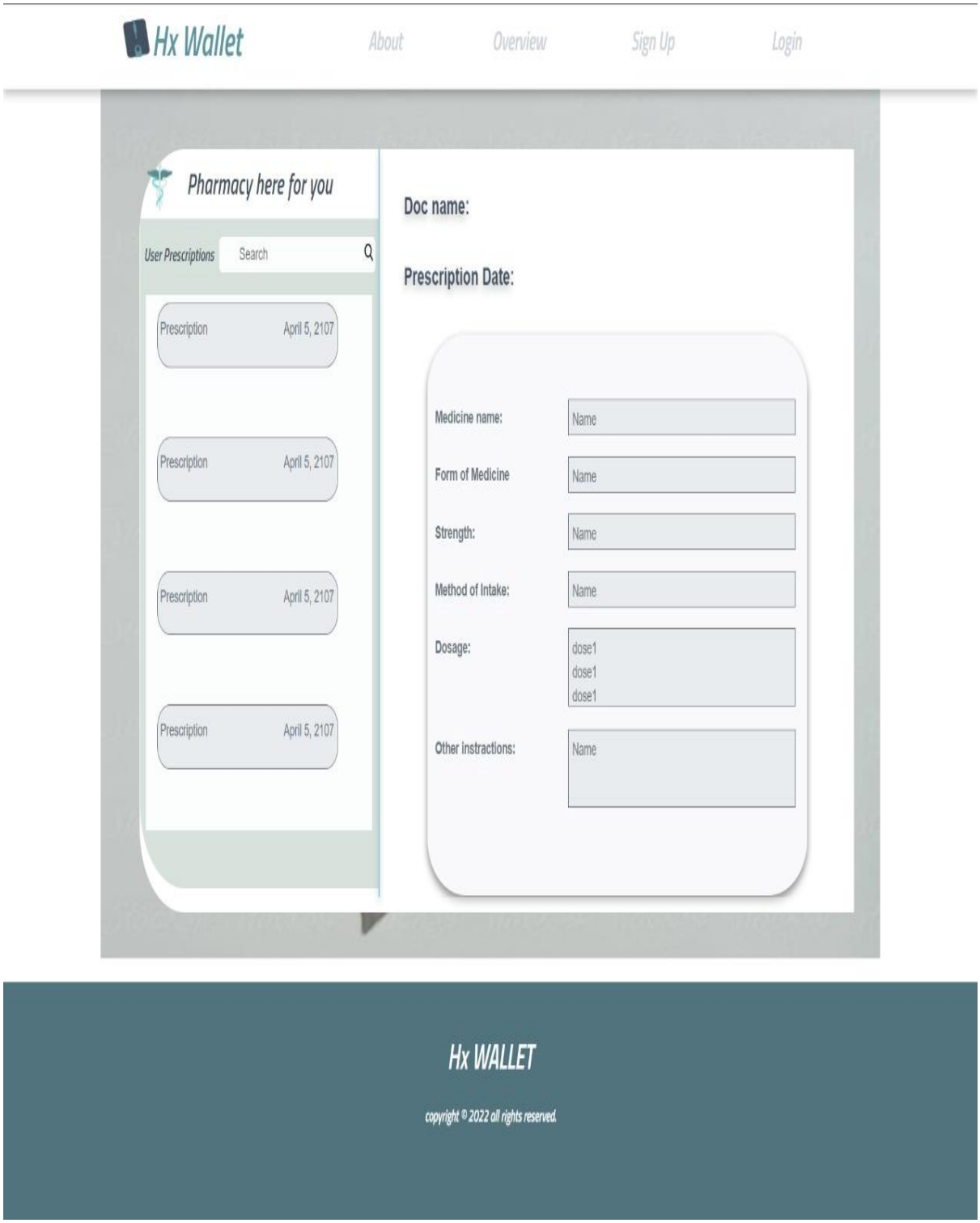

Hx Wallet
About
Overview
Sign Up
Login
Actions
show Patient Info
Show Hx
Add Prescription
Add Medical Test
Add X-Ray Teat
Medical X-Rays Name:
Please choose a X-ray
Other Instructions:
Note to patient .
submit

- Patient page

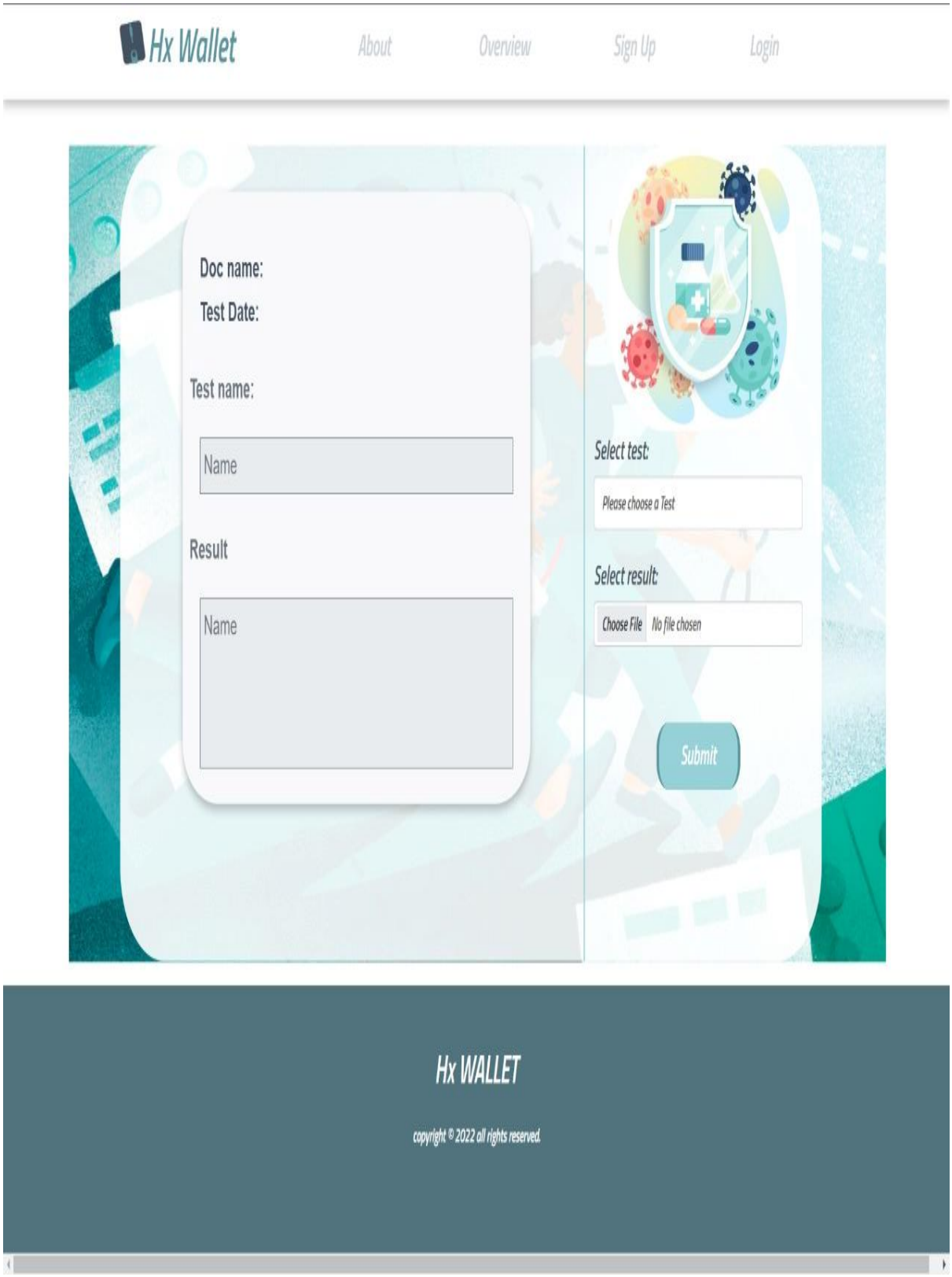




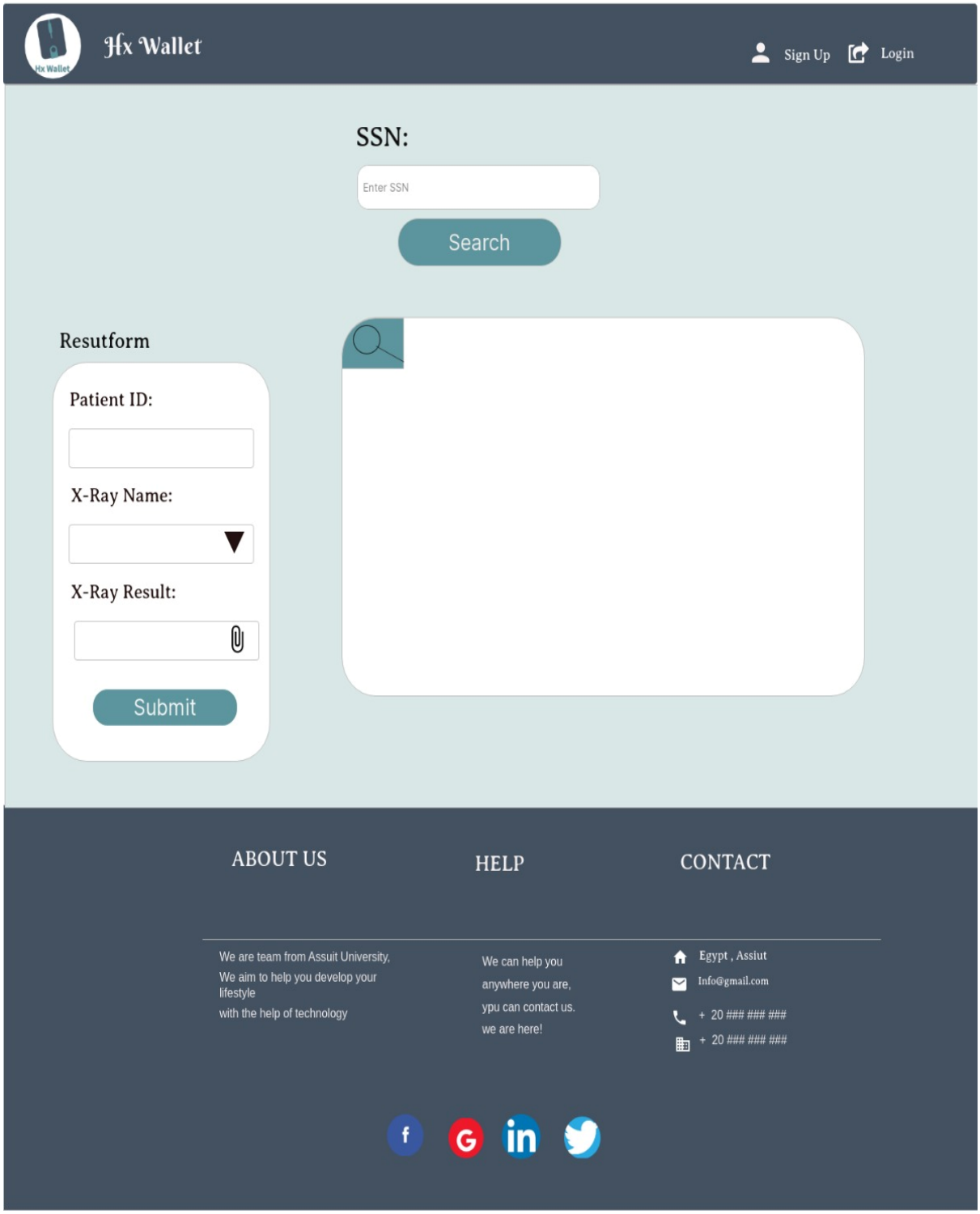
- Pharmacy page



- Test Lab page



- x-ray Lab page



4.1.3.Screens of code

Login code:

```
0 references
public void Configuration(IAppBuilder app)
{
    app.UseCors(CorsOptions.AllowAll);
    //use middle create tokens
    app.UseOAuthAuthorizationServer(new OAuthAuthorizationServerOptions()
    {
        TokenEndpointPath = new PathString("/login"),
        AccessTokenExpireTimeSpan = TimeSpan.FromDays(30),
        AllowInsecureHttp = true,
        //how to create token
        Provider=new TokenCreate()
    }) ;
    app.UseOAuthBearerAuthentication(new OAuthBearerAuthenticationOptions());
    //url expire

    //configration Object
   HttpConfiguration config = new HttpConfiguration();

    config.MapHttpAttributeRoutes();
    config.Routes.MapHttpRoute("DefaultApi", "api/{controller}/{id}",
        new { id=RouteParameter.Optional});
    app.UseWebApi(config);
    // For more information on how to configure your application, visit https://go.microsoft.com/fwlink/?LinkID=316888
}
```

```
internal class TokenCreate:OAuthAuthorizationServerProvider
{
    //[EmailAddress]
    //public string Email { get; set; }
    0 references
    public override async Task ValidateClientAuthentication(OAuthValidateClientAuthenticationContext context)
    {
        context.Validated();//any cliented id vaild
    }
    //check user name pass
    0 references
    public override async Task GrantResourceOwnerCredentials
        (OAuthGrantResourceOwnerCredentialsContext context)
    {
        //Owin
        //allow access token from frontEnd
        context.OwinContext.Response.Headers.Add("Access - Control - Allow - Orgin",new[] { "*"});

        //check
        UserStore<ApplicationUser> store =
                new UserStore<ApplicationUser>(new ApplicationDbContext());
        UserManager<ApplicationUser> manager =
            new UserManager<ApplicationUser>(store);
        ApplicationUser user =await manager.FindAsync(context.UserName, context.Password);
        if (user==null)
        {
            context.SetError("grant-error","User Name & Password not vaild");

        }
    else
        {
            //create token
            ClaimsIdentity claim =
                new ClaimsIdentity(context.Options.AuthenticationType);
            //fields
            claim.AddClaim(new Claim(ClaimTypes.NameIdentifier, user.Id));
            claim.AddClaim(new Claim(ClaimTypes.Name, user.UserName));
            if (manager.IsInRole(user.Id, "Admin"))
            {
                claim.AddClaim(new Claim(ClaimTypes.Role, "Admin"));

            }

            context.Validated(claim);
        }
    }
}
```

Sign up code:

- patient signup:

```
//Patient Registration
#region PationRegistration
[Route("reg/pat")]
0 references
public async Task<IHttpActionResult> PostRegestrationPatient(PatientModel patient)
{

    if (!ModelState.IsValid)
    {
        return BadRequest(ModelState);
    }
    try
    {
        UserStore<ApplicationUser> store =
            new UserStore<ApplicationUser>(new ApplicationDbContext());
        UserManager<ApplicationUser> manager =
            new UserManager<ApplicationUser>(store);
        ApplicationUser user = new ApplicationUser();
        user.UserName = patient.Email;
        user.Email = patient.Email;
        user.PasswordHash = patient.Password;
        user.Id = patient.ID;
        user.PhoneNumber = patient.Phone;
        IdentityResult result = await manager.CreateAsync(user, patient.Password);
        if (result.Succeeded)
        {

            //Add Patient IN Dtatbase
            ApplicationDbContext appDbContext = new ApplicationDbContext();
            Patient _Patient = new Patient()
            {
                ID = patient.ID,
                Name = patient.Name,
                Email = patient.Email,
                Phone = patient.Phone,
                Age = patient.Age,
                Address = patient.Address
            };
            appDbContext.Patients.Add(_Patient);
            await appDbContext.SaveChangesAsync();
            ////////////////////////////////////
            return Created("", "Register Sucess Patient " + user.UserName);

        }
        else
        {
            return BadRequest(result.Errors.ToList()[0]);
        }
    }
    catch (Exception ex)
    {
        return BadRequest(ex.Message);
    }
}
#endregion
```

- doctor signup:

```
//Doctor Registration
#region DoctorRegistration
[Route("reg/doc")]
0 references
public async Task<IHttpActionResult> PostRegestrationDoctor(DoctorModel doctor)
{
    if (!ModelState.IsValid)
    {
        return BadRequest(ModelState);
    }
    try
    {
        UserStore<ApplicationUser> store =
            new UserStore<ApplicationUser>(new ApplicationDbContext());
        UserManager<ApplicationUser> manager =
            new UserManager<ApplicationUser>(store);
        ApplicationUser user = new ApplicationUser();
        user.UserName = doctor.Email;
        user.PasswordHash = doctor.Password;
        user.Id = doctor.ID;
        user.PhoneNumber = doctor.Phone;
        user.Email = doctor.Email;
        IdentityResult result = await manager.CreateAsync(user, doctor.Password);
        if (result.Succeeded)
        {

            //Add Doctor IN Dtatbase
            ApplicationDbContext appDbContext = new ApplicationDbContext();
            Doctor _doctor = new Doctor()
            {
                ID = doctor.ID,
                Name = doctor.Name,
                Email = doctor.Email,
                Phone = doctor.Phone,
                Specialization = doctor.Specialization

            };
            appDbContext.Doctors.Add(_doctor);
            await appDbContext.SaveChangesAsync();
            ////////////////////////////////////

            return Created("", "Register Sucess Doctor " + user.UserName);

        }
        else
        {
            return BadRequest(result.Errors.ToList()[0]);
        }
    }
    catch (Exception ex)
    {
        return BadRequest(ex.Message);
    }
}
#endregion
```

- pharmacy signup:

```
//Pharmacy Registration
#region PharmacyRegistration
[Route("reg/phar")]
0 references
public async Task<IHttpActionResult> PostRegestrationPharmacy(PharmacyModel pharmacy)
{
    if (!ModelState.IsValid)
    {
        return BadRequest(ModelState);
    }
    try
    {
        UserStore<ApplicationUser> store =
            new UserStore<ApplicationUser>(new ApplicationDbContext());
        UserManager<ApplicationUser> manager =
            new UserManager<ApplicationUser>(store);
        ApplicationUser user = new ApplicationUser();
        user.UserName = pharmacy.Email;
        user.PasswordHash = pharmacy.Password;
        user.Id = pharmacy.ID;
        user.Email = pharmacy.Email;
        user.PhoneNumber = pharmacy.Phone;
        IdentityResult result = await manager.CreateAsync(user, pharmacy.Password);
        if (result.Succeeded)
        {
            //Add Pharmacy IN Dtatbase
            ApplicationDbContext appDbContext = new ApplicationDbContext();
            Pharmacy _Pharmacy = new Pharmacy()
            {
                ID = pharmacy.ID,
                Name = pharmacy.Name,
                Email = pharmacy.Email,
                Phone = pharmacy.Phone,
                Address = pharmacy.Address
            };
            appDbContext.Pharmacies.Add(_Pharmacy);
            await appDbContext.SaveChangesAsync();
            ////////////////////////////////////

            return Created("", "Register Sucess Pharmacy " + user.UserName);

        }
        else
        {
            return BadRequest(result.Errors.ToList()[0]);
        }
    }
    catch (Exception ex)
    {
        return BadRequest(ex.Message);
    }
}
#endregion
```

- test lab signup:

```
//Test Lab Registration
#region TestLabRegistration
[Route("reg/tlab")]
0 references
public async Task<IHttpActionResult> PostRegestrationTestLab(TestLabModel testLab)
{
    if (!ModelState.IsValid)
    {
        return BadRequest(ModelState);
    }
    try
    {
        UserStore<ApplicationUser> store =
            new UserStore<ApplicationUser>(new ApplicationDbContext());
        UserManager<ApplicationUser> manager =
            new UserManager<ApplicationUser>(store);
        ApplicationUser user = new ApplicationUser();
        user.UserName = testLab.Email;
        user.Email = testLab.Email;
        user.PasswordHash = testLab.Password;
        user.Id = testLab.ID;
        user.PhoneNumber = testLab.Phone;
        IdentityResult result = await manager.CreateAsync(user, testLab.Password);
        if (result.Succeeded)
        {
            //Add Test Lab IN Dtatbase
            ApplicationDbContext appDbContext = new ApplicationDbContext();
            TestLab _testLab = new TestLab()
            {
                ID = testLab.ID,
                Name = testLab.Name,
                Email = testLab.Email,
                Phone = testLab.Phone,
                Address = testLab.Address
            };
            appDbContext.TestLabs.Add(_testLab);
            await appDbContext.SaveChangesAsync();
            ////////////////////////////////////


            return Created("", "Register Sucess Test Lab " + user.UserName);

        }
        else
        {
            return BadRequest(result.Errors.ToList()[0]);
        }
    }
    catch (Exception ex)
    {
        return BadRequest(ex.Message);
    }
}
#endregion
// Forget Password
```

- x-ray lab signup:

```
//X-Ray Lab Registration
#region X_RayLabRegistration
[Route("reg/xlab")]
0 references
public async Task<IHttpActionResult> PostRegestrationXRayLab(X_RayLabModel x_RayLab)
{
    if (!ModelState.IsValid)
    {
        return BadRequest(ModelState);
    }
    try
    {
        UserStore<ApplicationUser> store =
            new UserStore<ApplicationUser>(new ApplicationDbContext());
        UserManager<ApplicationUser> manager =
            new UserManager<ApplicationUser>(store);
        ApplicationUser user = new ApplicationUser();
        user.UserName = x_RayLab.Email;
        user.Email = x_RayLab.Email;
        user.PasswordHash = x_RayLab.Password;
        user.Id = x_RayLab.ID;
        user.PhoneNumber = x_RayLab.Phone;
        IdentityResult result = await manager.CreateAsync(user, x_RayLab.Password);
        if (result.Succeeded)
        {
            //Add X-ray Lab IN Dtatbase
            ApplicationDbContext appDbContext = new ApplicationDbContext();
            X_RayLab _x_RayLab = new X_RayLab()
            {
                ID =x_RayLab.ID,
                Name = x_RayLab.Name,
                Email = x_RayLab.Email,
                Phone = x_RayLab.Phone,
                Address = x_RayLab.Address
            };
            appDbContext.X_RayLabs.Add(_x_RayLab);
            await appDbContext.SaveChangesAsync();
            ////////////////////////////////////


            return Created("", "Register Sucess X-Ray Lab " + user.UserName);

        }
        else
        {
            return BadRequest(result.Errors.ToList()[0]);
        }
    }
    catch (Exception ex)
    {
        return BadRequest(ex.Message);
    }
}
#endregion
```

```
5 references
public class User
{
    5 references
    public string Name { set; get; }
    5 references
    public string ID { set; get; }
    5 references
    public string Phone { set; get; }
    5 references
    public string Email { set; get; }
}
```

```
3 references
public class Doctor :User
{
    1 reference
    public string Specialization { get; set; }
}
```

```
3 references
public class Patient :User
{
    1 reference
    public int Age { get; set; }
    1 reference
    public string Address { get; set; }
}
```

Application DB Context:

```
41 references
public class ApplicationDbContext : IdentityDbContext//user //role //claims
{
    22 references
    public ApplicationDbContext() : base("CS"){ }
    11 references
    public virtual DbSet<Patient> Patients { get; set; }
    8 references
    public virtual DbSet<Doctor> Doctors { get; set; }
    2 references
    public virtual DbSet<Pharmacy> Pharmacies { get; set; }
    10 references
    public virtual DbSet<Prescription> Prescriptions { get; set; }
    2 references
    public virtual DbSet<XRayLab> XRayLabs { get; set; }
    0 references
    public virtual DbSet<XRay> XRays { get; set; }
    0 references
    public virtual DbSet<XRayLabPatient> XRayLabPatients { get; set; }
    2 references
    public virtual DbSet<TestLab> TestLabs { get; set; }
    0 references
    public virtual DbSet<MedicalTest> MedicalTests { get; set; }
    0 references
    public virtual DbSet<TestLabPatient> TestLabPatients { get; set; }
    7 references
    public virtual DbSet<Drug> Drugs { get; set; }
    4 references
    public virtual DbSet<DrugInPharmacy> DrugInPharmacies { get; set; }
    4 references
    public virtual DbSet<DrugInPrescription> DrugInPrescriptions { get; set; }
    6 references
    public virtual DbSet<MedicalExamination> MedicalExaminations { get; set; }
    0 references
    public virtual DbSet<Account> Accounts { get; set; }
    4 references
    public virtual DbSet<Patirnt_test> Patirnt_test { get; set; }
    4 references
    public virtual DbSet<Patient_Xray> Patient_Xray { get; set; }
    9 references
    public virtual DbSet<Notification> Notifications { get; set; }
    6 references
    public virtual DbSet<Image> Images { get; set; }
}
```

Account Controller:

```
0 references
public class AccountController : ApiController
{
    //Patient Registration
    PationRegistration

    //Doctor Registration
    DoctorRegistration

    //Pharmacy Registration
    PharmacyRegistration

    //X-Ray Lab Registration
    X_RayLabRegistration

    //Test Lab Registration
    TestLabRegistration


}
```

Doctor Controller:

```
public class DoctorsController : ApiController
{
    public string connectionString = "Data Source=YOUSSEF\\SQLEXPRESS;Initial Catalog=GradProject;Integrated Security=Tru
    private ApplicationDbContext db = new ApplicationDbContext();
    // GET: api/Doctors
    [Route("get/docs")]
    0 references
    public IQueryable<Doctor> GetDoctors()...
    // GET: api/Doctors/5
    [ResponseType(typeof(Doctor))]
    [Route("get/doc/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetDoctor(string SSN)...
    // PUT: api/Doctors/5
    [ResponseType(typeof(void))]
    [Route("update/doc")]
    0 references
    public async Task<IHttpActionResult> PutDoctor(string SSN, Doctor doctor)...

    // POST: api/Doctors
    [Route("add/doc")]
    [ResponseType(typeof(Doctor))]
    0 references
    public async Task<IHttpActionResult> PostDoctor(Doctor doctor)...

    // DELETE: api/Doctors/5
    [ResponseType(typeof(Doctor))]
    [Route("del/doc/{SSN}")]
    0 references
    public async Task<IHttpActionResult> DeleteDoctor(string SSN)...
     0 references
     protected override void Dispose(bool disposing)...

    2 references
    private bool DoctorExists(string SSN)...
}
```

Drug Controller:

```
0 references
public class DrugsController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();
    // GET: api/Drugs
    [Route("get/drugs")]
    0 references
    public IQueryable<Drug> GetDrugs()...
     // GET: api/Drugs/5
    [ResponseType(typeof(Drug))]
    //[Route("get/drug/{id}")]
    0 references
    public async Task<IHttpActionResult> GetDrug(int id)...
    // PUT: api/Drugs/5
    [ResponseType(typeof(void))]
    [Route("update/drug")]
    0 references
    public async Task<IHttpActionResult> PutDrug(int id, Drug drug)...

    // POST: api/Drugs
    [ResponseType(typeof(Drug))]
   // [Route("add/drug")]
    0 references
    public async Task<IHttpActionResult> PostDrug(Drug drug)...

    // DELETE: api/Drugs/5
    [ResponseType(typeof(Drug))]
    [Route("del/drug")]
    0 references
    public async Task<IHttpActionResult> DeleteDrug(int id)...
    0 references
    protected override void Dispose(bool disposing)...
    2 references
    private bool DrugExists(int id)...
}
```

Image Controller:

```
0 references
public class ImagesController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();

    // GET: api/Images
    0 references
    public IQueryable<Image> GetImages()...

    // GET: api/Images/5
    [ResponseType(typeof(Image))]
    0 references
    public async Task<IHttpActionResult> GetImage(int id)...

    // PUT: api/Images/5
    [ResponseType(typeof(void))]
    0 references
    public async Task<IHttpActionResult> PutImage(int id, Image image)...

    // POST: api/Images
    [ResponseType(typeof(string))]
    [Consumes("multipart/form-data")]
    [System.Web.Http.Route("api/uploadImg")]
    0 references
    public async Task<IHttpActionResult> PostImage(HttpPostedFileBase postedFile)...

    // DELETE: api/Images/5
    [ResponseType(typeof(Image))]
    0 references
    public async Task<IHttpActionResult> DeleteImage(int id)...

    0 references
    protected override void Dispose(bool disposing)...

    1 reference
    private bool ImageExists(int id)...
}
```

Notifications Controller:

Patient- Test Controller:

```
public class NotificationsController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();
    // GET: api/Notifications
    0 references
    public IQueryable<Notification> GetNotifications()...
    // GET: api/Notifications/5
    [ResponseType(typeof(List<Notification>))]
    [Route("api/notSeenNotification/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetNotifications(String SSN)...
    [ResponseType(typeof(List<Notification>))]
    [Route("api/allNotification/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetAllNotifications(String SSN)...
    [ResponseType(typeof(int))]
    [Route("api/numberOfNotification/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetNotificationsNumber(String SSN)...
    // PUT: api/Notifications/5
    [ResponseType(typeof(void))]
    [Route("api/readAllNotifications/{SSN}")]
    0 references
    public async Task<IHttpActionResult> postreadAllNotifications(string SSN)...
    [ResponseType(typeof(void))]
    [Route("api/readOneNotification/{ID}")]
    0 references
    public async Task<IHttpActionResult> postreadOneNotification(int ID)...
    // POST: api/Notifications
    [ResponseType(typeof(void))]
    [Route("api/addNotification")]
    0 references
    public async Task<IHttpActionResult> PostNotificationTestLab(Notification notification)...
    // DELETE: api/Notifications/5
    [ResponseType(typeof(Notification))]
    0 references
    public async Task<IHttpActionResult> DeleteNotification(int id)...
}
```

```
0 references
public class Patient_testController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();

    // GET: api/Patirnt_test
    0 references
    public IQueryable<Patirnt_test> GetPatirnt_test()...

    // GET: api/Patirnt_test/5
    [Route("t/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetPatient_tst(string SSN)...

    // PUT: api/Patirnt_test/5
    [Route("add/tst")]
    0 references
    public async Task<IHttpActionResult> PostPatirnt_test(Patirnt_test test)...
    0 references
    protected override void Dispose(bool disposing)
    {
        if (disposing)
        {
            db.Dispose();
        }
        base.Dispose(disposing);
    }
    0 references
    private bool Patirnt_testExists(int id)
    {
        return db.Patirnt_test.Count(e => e.ID == id) > 0;
    }
}
```

Patient-X-rays Controller:

```
public class Patient_XrayController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();

    // GET: api/Patient_Xray
    0 references
    public IQueryable<Patient_Xray> GetPatient_Xray()...

    // GET: api/Patient_Xray/5
    [Route("x/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetPatient_Xray(string SSN)...
    [Route("add/xray")]
    0 references
    public async Task<IHttpActionResult> PostPatirnt_xray(Patient_Xray X_ray)...
    0 references
    protected override void Dispose(bool disposing)...
    0 references
    private bool Patient_XrayExists(int id)
    {
        return db.Patient_Xray.Count(e => e.ID == id) > 0;
    }
}
```

Patient Controller:

```
public class PatientsController : ApiController
{
    ApplicationDbContext db = new ApplicationDbContext();
    // GET: api/Patients
    0 references
    public IQueryable<Patient> GetPatients()...
    // GET: api/Patients/5
    [ResponseType(typeof(PatientInfo))]
    [Route("Patient/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetPatient(string SSN)...

    [Route("presp/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetPrecsc(string SSN)...
    [Route("Xray/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetXray(string SSN)...

    [Route("Test/{SSN}")]
    0 references
    public async Task<IHttpActionResult> GetTest(string SSN)...
    [Route("pre/{SSN}/{idPrec}")]
    0 references
    public async Task<IHttpActionResult> Getpre(string SSN,int idPrec)...
    [Route("tpatient/{SSN}/{idtst}")]
    0 references
    public async Task<IHttpActionResult> Gettst(string SSN, int idtst)...
    [Route("xpatient/{SSN}/{idxray}")]
    0 references
    public async Task<IHttpActionResult> Getxray(string SSN, int idxray)...

    [ResponseType(typeof(Patient))]
    [Route("getPat/{SSN}")]
    0 references
    public async Task<IHttpActionResult> getPatient(string SSN)...

}
```

Pharmacy Controller:

```
public class PharmacyController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();
    [ResponseType(typeof(void))]
    [Route("phar/BuyDrugs/{SSN}")]
    0 references
    public async Task<IHttpActionResult>postBuyDrugs(string SSN,BuyDrug buyDrug)...
    [ResponseType(typeof(List<Prescription>))]
    [Route("phar/ShowPatientPres/{SSN}")]
    0 references
    public async Task<IHttpActionResult> getPatientPrescriptions(string SSN)...
    [ResponseType(typeof(List<DrugInfo>))]
    [Route("phar/ShowDrugs/{SSN}/{ID}")]
    0 references
    public async Task<IHttpActionResult> getShowPrescription(string SSN,int ID)...
    [ResponseType(typeof(double))]
    [Route("phar/VentDrugs/{SSN}/{ID}")]
    0 references
    public async Task<IHttpActionResult> postVentPrescription(string SSN,int ID,List<DrugInfo> drugInfos)...
    0 references
    protected override void Dispose(bool disposing)...
    0 references
    private bool PrescriptionExists(int id)...
}
```

Prescription Controller:

```
public class PrescriptionsController : ApiController
{
    private ApplicationDbContext db = new ApplicationDbContext();
    // GET: api/Prescriptions
    [Route("get/pres")]
    0 references
    public IQueryable<Prescription> GetPrescriptions()...

    // GET: api/Prescriptions/5
    [ResponseType(typeof(Prescription))]
    //[Route("get/pre/{id}")]
    // [Route("api/pre/{id}", Name = "GetPreById")]
    0 references
    public async Task<IHttpActionResult> GetPrescription(int id)...

    // PUT: api/Prescriptions/5
    [ResponseType(typeof(void))]
    [Route("update/pre")]
    0 references
    public async Task<IHttpActionResult> PutPrescription(int id, Prescription prescription)...

    // POST: api/Prescriptions
    [ResponseType(typeof(Prescription))]
    //   [Route("add/pre")]
    0 references
    public async Task<IHttpActionResult> PostPrescription(PrescriptionModel prescriptionModel)...

    // DELETE: api/Prescriptions/5
    [ResponseType(typeof(Prescription))]
    [Route("del/pre/{id}")]
    0 references
    public async Task<IHttpActionResult> DeletePrescription(int id)...
    0 references
    protected override void Dispose(bool disposing)...
    2 references
    private bool PrescriptionExists(int id)...
}
```

5.1.3. References

in front end:

- ITI front end training course
- Google search

In back end:

- ITI .net training course
- Google search
- Asp.net web api

6. Conclusion and Future Improvement:

6.1.1. Conclusion:

we did website that make a contact between five stackholders with each other they are (Doctor, patient, pharmacy, x-rays lab, test-lab) and it focus on the prescription but the prescription is electronic beacuse this idea make all the

patient history saved easier and no any treatment details are loss.

6.1.2. Future Improvement:

1-Stay Focused on the Main Goal.

2-Improve Project Planning and Quality.

3-increase security.

4-Use Intuitive Time and Expense Technology.

5-Increase productivity.

6-Minimize risks and high return on investement.

7-Add financials to the project status report.

8-Send out meeting agendas in advance.

9-Revise project financials weekly.

10-Revisit resource forecasts weekly.