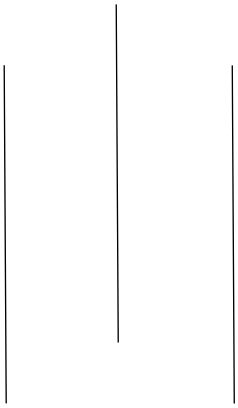
FEDERATION UNIVERSITY

ITECH7415 Masters Project



Installation and setup guide

"*Electronic Health Records"*

Table of Contents

Introduction

Purpose of the Document

This installation guide is provided to assist IT Administrators in setting up an Electronic Health Record (EHR) simulator. This project, developed as part of a Masters Project assignment, is designed to support the Federation University nursing department. The EHR simulator allows nursing students to interact with a simulated medical records system, helping them gain hands-on experience in charting patient data, managing IV fluids, medication records, and other critical tasks. This document outlines the steps necessary to install and configure IIS, SQL Server Express, and publish the website on IIS to ensure optimal functionality of the EHR simulator.

Prerequisites

Before proceeding with this installation guide, ensure that the following prerequisites are met:

Server Environment:

A Windows Server machine with administrator access, capable of running IIS and SQL Server Express.

System Requirements:

Minimum 8 GB RAM

20 GB of available disk space

.NET Framework (version 8)

Software:

Installation files for IIS (Internet Information Services)

SQL Server Express installation package

Published EHR simulator website files (provided by the project team)

Network Requirements:

Access to internal network for SQL and website access, with proper firewall and port settings to allow HTTP/ HTTPS and SQL connections.

User Permissions:

IT Admin must have permissions to install software, configure services, and manage IIS and SQL Server settings on the server.

Audience

This installation guide is designed for IT Administrators and technical staff at Federation University responsible for deploying and maintaining applications on internal servers.

The guide aims to provide clear, step-by-step instructions for the deployment of the Electronic Health Record (EHR) simulator, ensuring that nursing department staff and students have reliable access to this educational tool.

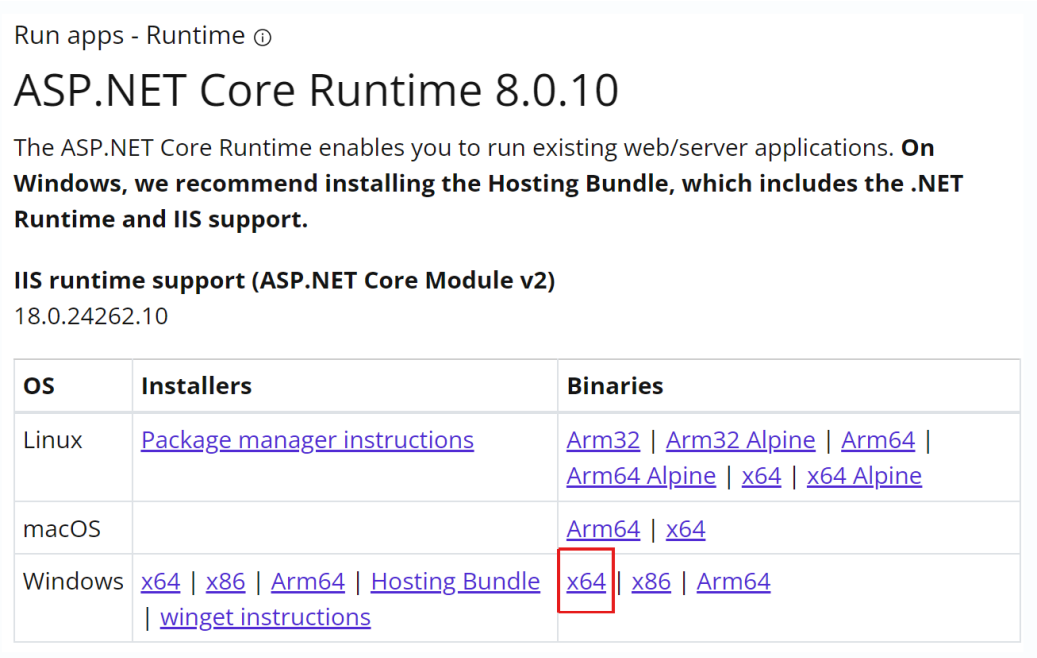
Installing .Net Framework 8

Microsoft website URL link

Install the ASP.NET core Runtime version 8 from the below Microsoft website URL link.

https://dotnet.microsoft.com/en-us/download/dotnet/8.0

Select the runtime for Windows x64 as shown in the figure below



Run apps - Runtime ⓘ

ASP.NET Core Runtime 8.0.10

The ASP.NET Core Runtime enables you to run existing web/server applications. **On Windows, we recommend installing the Hosting Bundle, which includes the .NET Runtime and IIS support.**

IIS runtime support (ASP.NET Core Module v2)
18.0.24262.10

OS	Installers	Binaries
Linux	Package manager instructions	Arm32 | Arm32 Alpine | Arm64 | Arm64 Alpine | x64 | x64 Alpine
macOS		Arm64 | x64
Windows	x64 | x86 | Arm64 | Hosting Bundle | winget instructions	x64 | x86 | Arm64

Setting Up IIS (Internet Information Services)

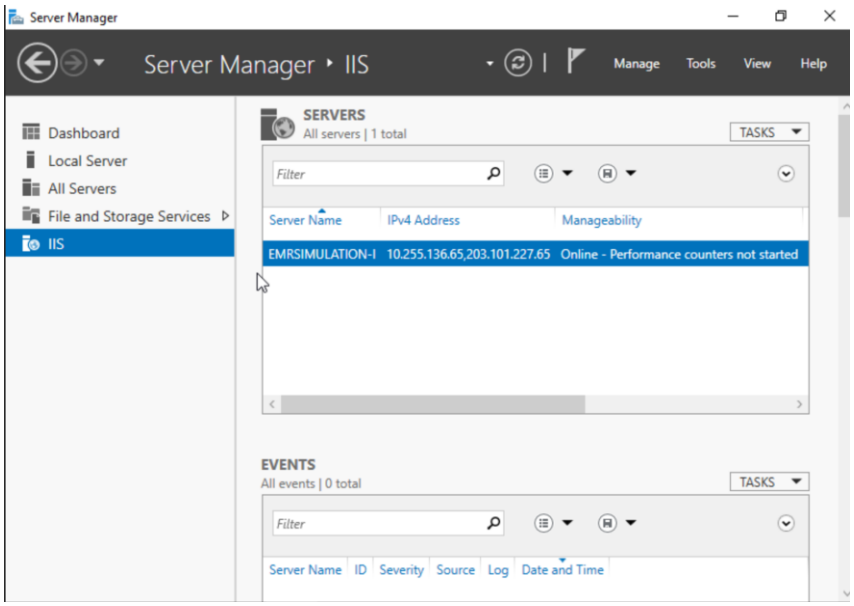
Overview of IIS

Internet Information Services (IIS) is a flexible, secure, and manageable Web server for hosting websites and web applications on Windows. IIS provides a stable platform to deploy ASP.NET applications, like the Electronic Health Record (EHR) simulator, allowing users to access the application within a network or over the internet. In this setup, IIS will serve as the web server hosting the simulator for the nursing department.

Installing on a Windows Server

Enabling IIS through Server Manager

For reference: https://www.youtube.com/watch?v=vRyq9E6N1fI



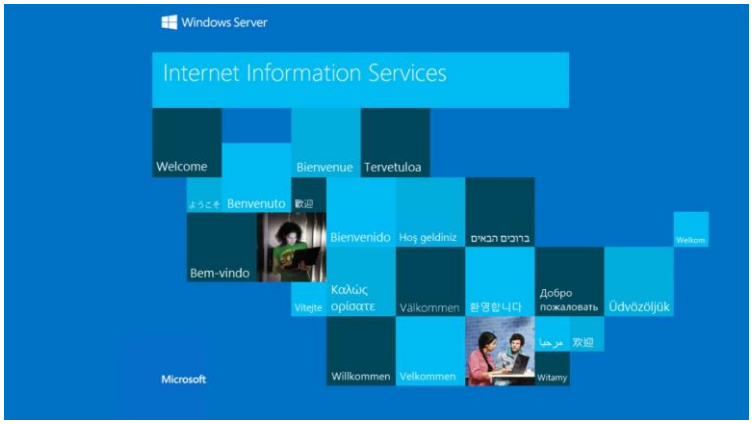
Verifying IIS Installation

To confirm that IIS is installed and running:

Open a web browser on the server.

Enter http://localhost in the address bar.

If IIS is running correctly, you will see the IIS Welcome Page. This indicates that IIS is installed and serving web pages.



Installing on a Windows PC

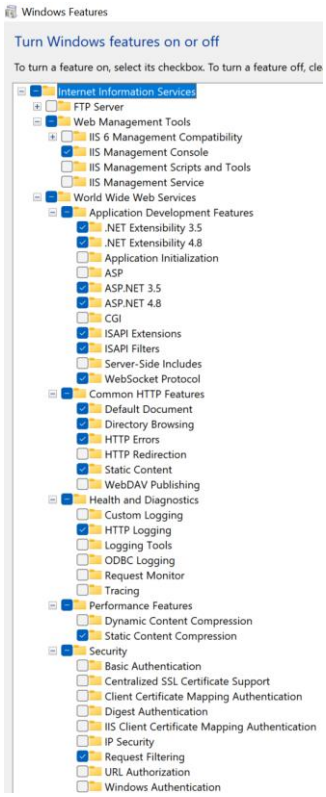
Setting Up IIS on Windows 10 or 11

1. Enabling IIS through Control Panel
2. Open Control Panel:
3. Press Win + S, type Control Panel, and open it from the list.
4. Go to Programs:
5. Select Programs > Turn Windows features on or off.
6. Enable Internet Information Services (IIS):
    - In the Windows Features window, check Internet Information Services.
    - Expand Internet Information Services to enable additional options if needed:
        - Web Management Tools:
            - Ensure IIS Management Console is selected to manage sites.
        - World Wide Web Services:
            - Application Development Features:
                - Enable .NET Extensibility, ASP.NET, ISAPI Extensions, and ISAPI Filters if your application requires these.
        - Security:
            - Enable Basic Authentication and Windows Authentication if required for security.
        - Common HTTP Features:
            - Enable Static Content, Default Document, and HTTP Errors for basic functionality.
7. Apply Changes:

Click OK to enable IIS and wait for Windows to apply the changes.

8. Restart the PC if prompted.

The below screen shot taken from my Windows PC.



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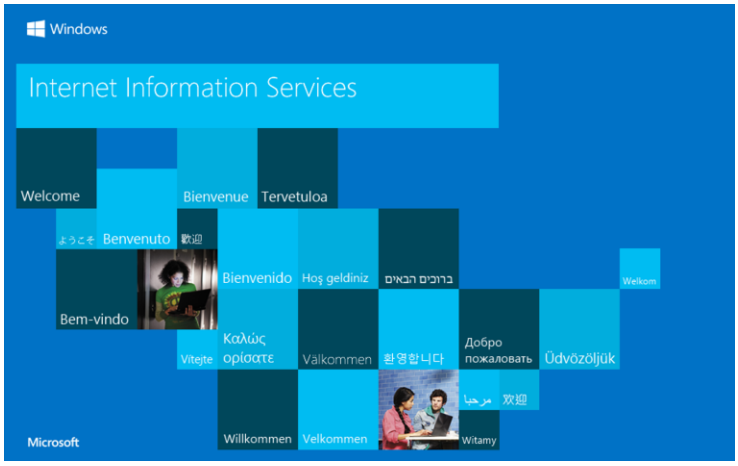


Configuring Basic IIS Settings

Once the installation is completed successfully.

Go to the folder path

C:\inetpub\wwwroot

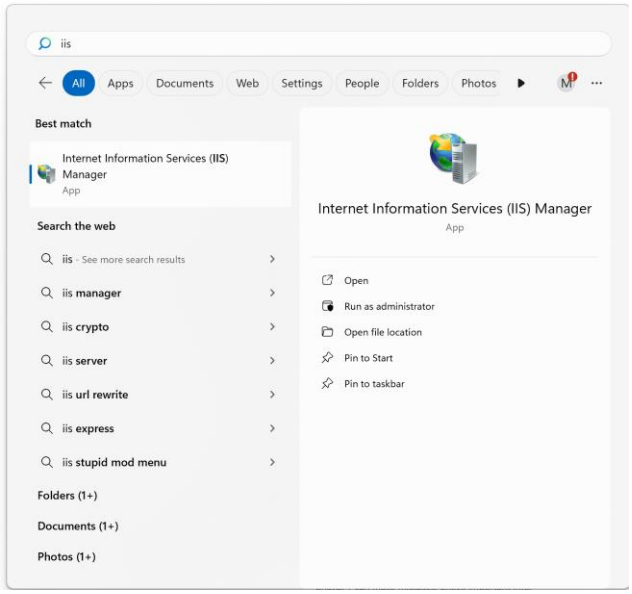
Create a new folder and name it **EmrSimulator**

Open the folder C:\inetpub\wwwroot\EmrSimulator

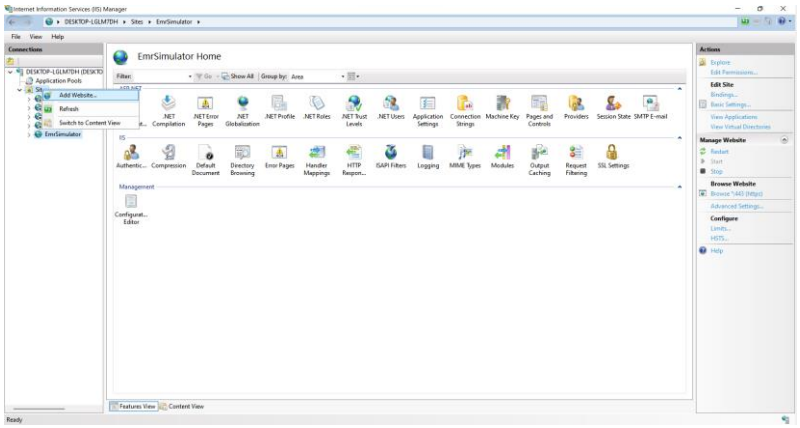
and paste published files provided.

Setting up EmrSimulator website

Open IIS

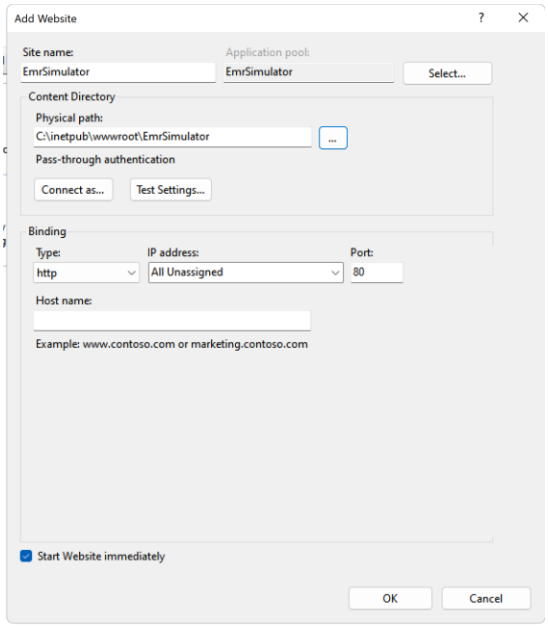


Right click on Sites and select Add Website... (as shown below)

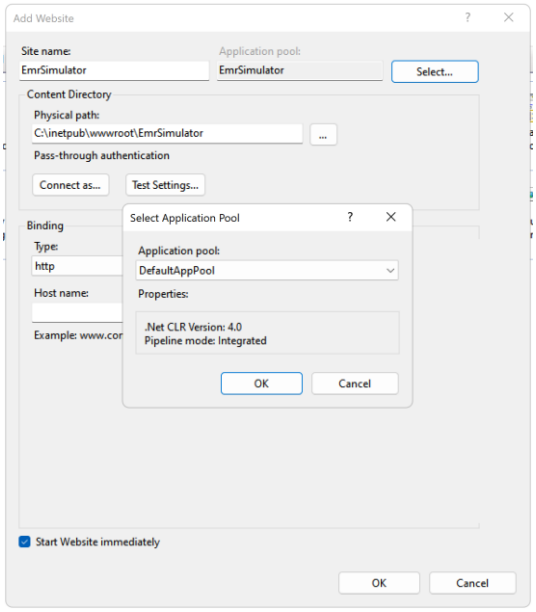


The below window will open.

Fill in the Site name, Application pool, Physical path and Binding could be http or https.



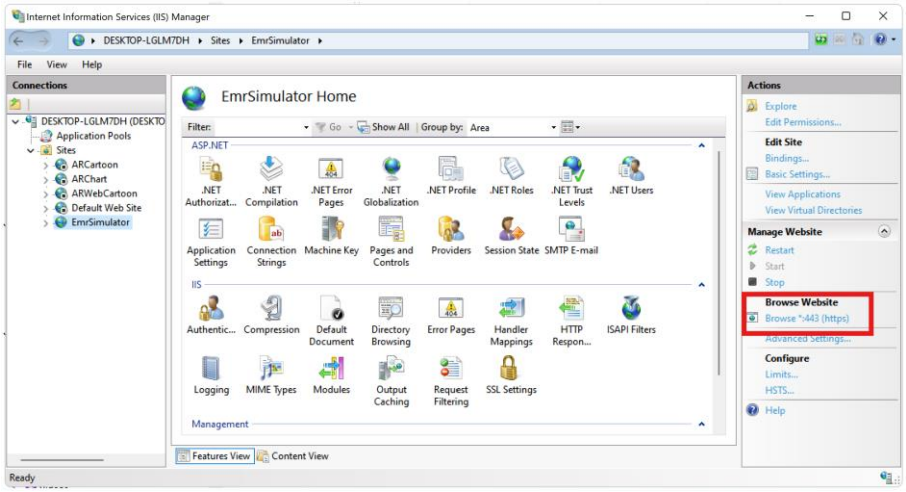
Verify the Application pool by click Select button



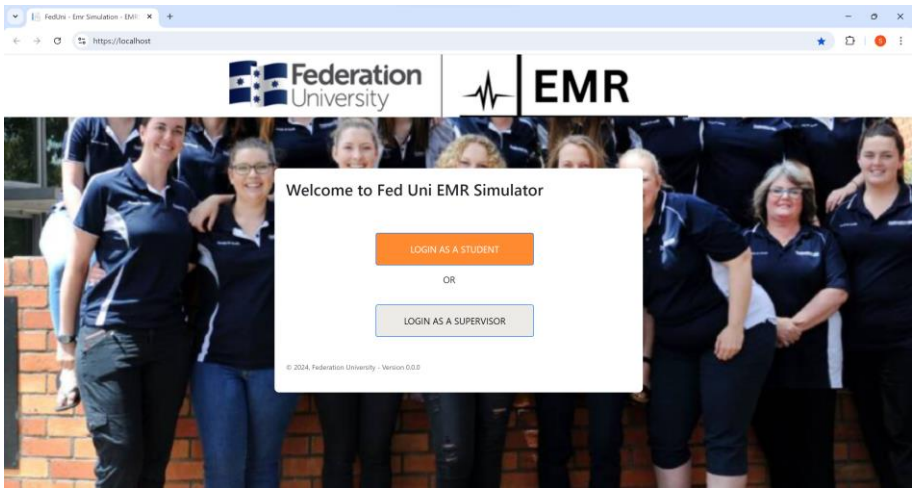
Press OK

Browse the EmrSimulator website

Click on the link under Browse Website as highlighted



The EmrSimulator Main Page will open



Installing SQL Server Express

Overview of SQL Server Express

SQL Server Express is a free, lightweight edition of Microsoft SQL Server, ideal for small to medium-sized applications. It provides core database features like data storage, querying, and management while using minimal resources, making it suitable for local or limited-scale applications. SQL Server Express supports essential tools like SQL Server Management Studio (SSMS) for easy database management and is compatible with applications developed in .NET, enabling secure, reliable data handling with moderate hardware requirements.

Link to install from Microsoft site.

https://www.microsoft.com/en-us/download/details.aspx?id=104781

For reference: YouTube tutorial to setup SQL Express and SQL Server Management Studio.

https://www.youtube.com/watch?v=LbgyYYKINj0

In the tutorial video, SQL express installation starts at 1:00 time and ends at 6:45 time.

Overview of SQL Server Management Studio (SSMS)

SQL Server Management Studio (SSMS) is a free, comprehensive tool for managing SQL Server databases, including SQL Server Express. It provides an intuitive interface for tasks like creating databases, writing and executing queries, managing security, and performing backups. SSMS simplifies database administration with features for monitoring performance, troubleshooting issues, and optimising queries, making it essential for database management and maintenance in SQL Server environments.

Link to install from Microsoft site

https://learn.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-ver16

For reference: YouTube tutorial to setup SQL Express and SQL Server Management Studio.

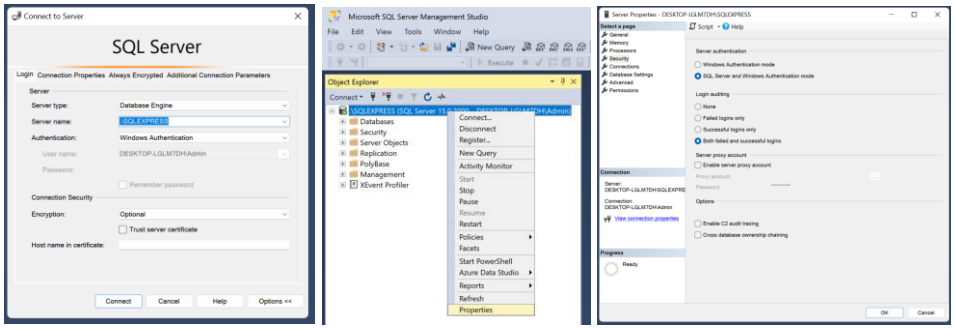
https://www.youtube.com/watch?v=LbgyYYKINj0

In the tutorial video, SQL management studio video installation starts at 7:05 time and ends at 8:35 time.

Somethings to remember

1. If you missed to setup **Mixed Mode (SQL Server and Windows authentication)** during installation, do the following:

   After installing SQL Management Studio, login as Windows Authentication. Right click the server and go to security and check the "SQL Server and Windows Authentication Mode"



2. During SQLEXPRESS installation check mixed mode and set the **sa** password as **Emrp@ssword123!**

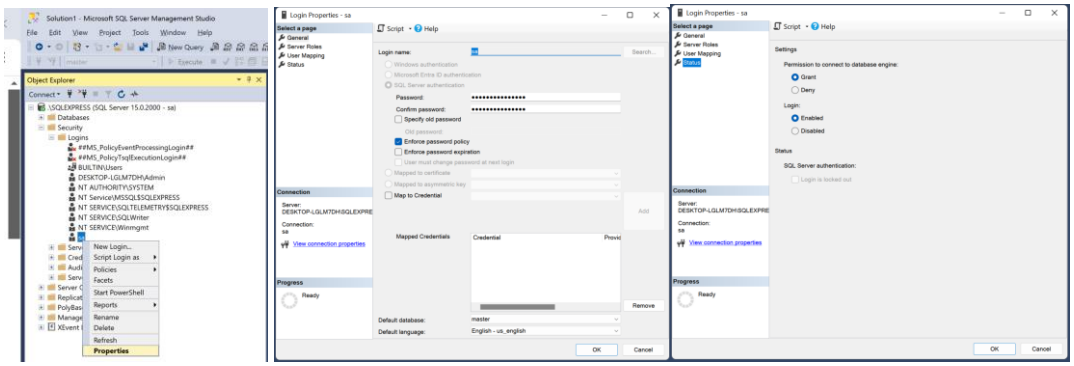
3. If you missed to setup **sa** password, do the following:

   Open SQL Management studio, connect with windows authentication and make sure **master** database is selected and then execute the below query by opening a New Query window.

```
ALTER LOGIN sa ENABLE;
Go
ALTER LOGIN sa WITH PASSWORD = 'Emrp@ssword123!';
```

   Other or second way to do is as following:

   Open SQL Management studio, connect with windows authentication



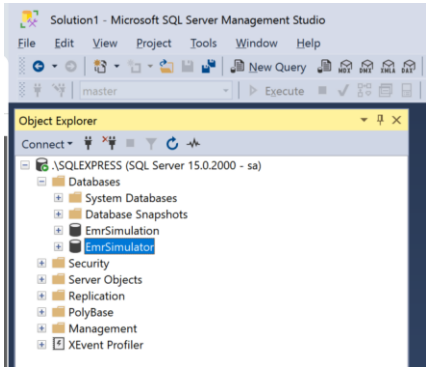
Creating the EMRSimulator Database

For reference: YouTube tutorial to create a Database.

https://www.youtube.com/watch?v=LbgyYYKINj0

In the tutorial video, SQL management studio video installation starts at 8:50 time and ends at 11:00 time.

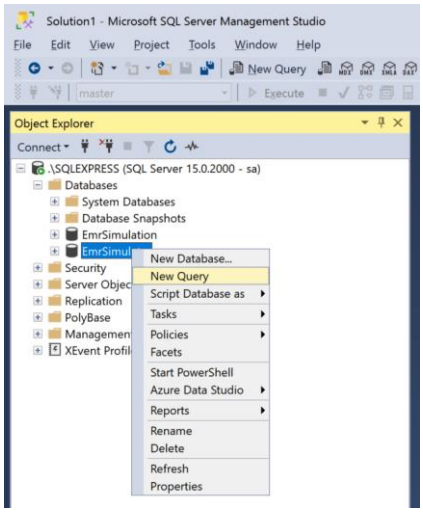
Once you have completed the steps to create the database



Scripts to generate DB schema

Run/ execute the DB script provided

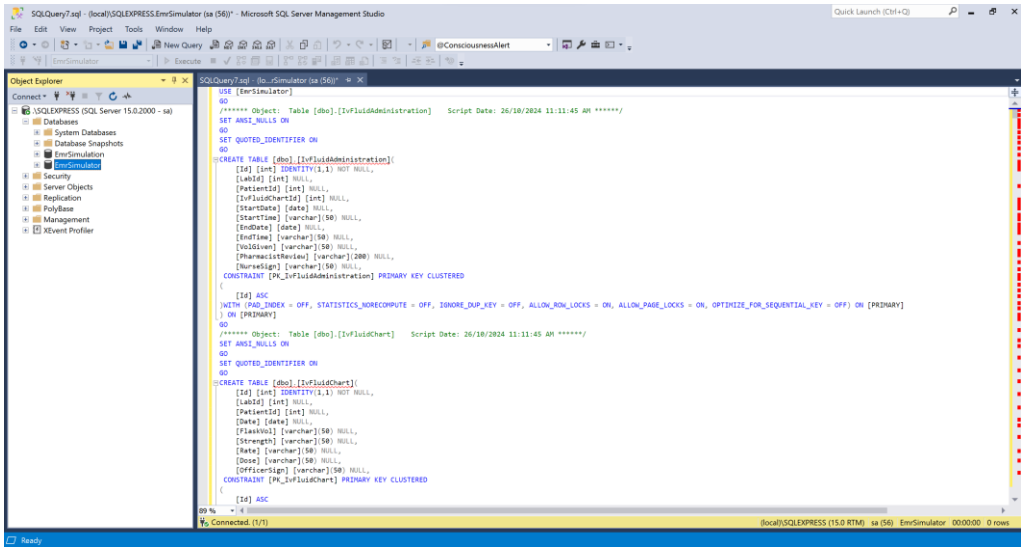
Click right on the EmrSimulator database and select **New Query**



Paste the script in the query window and click **Execute** or **F5**

Once executed successfully close the query window and make sure not to run it again.

But you can always delete the database and follow the same steps mentioned in the video and execute script. Once the system is live and data starts pouring into database, make sure not to delete the database as data will be lost.

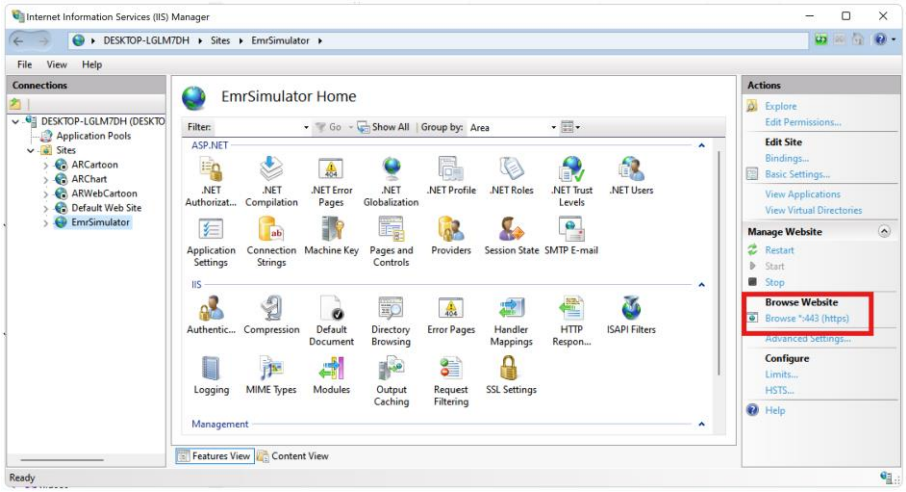


As it will be a newly created database, we need to create login for student and supervisor. Following scripts need to be executed on the **EmrSimulator** Database by opening a **New Query** window. Copy all and paste in the query and click **Execute** or **F5**.

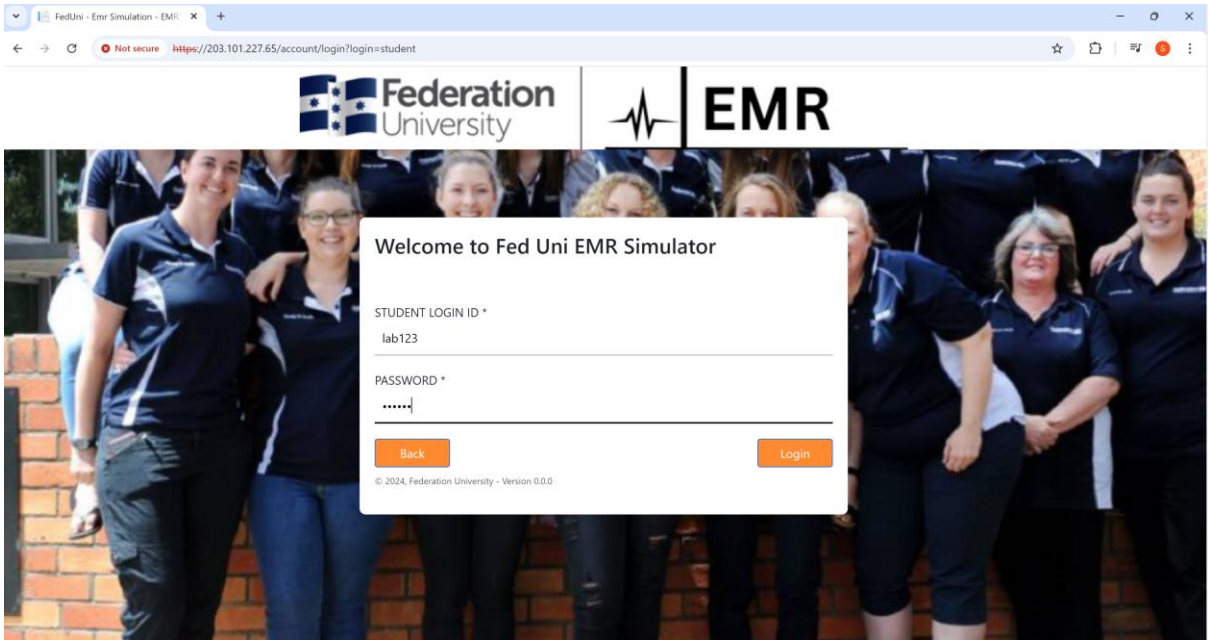
```
-- This will be used by the student to log in using login: lab123, password: lab123
-- Insert a new record in the Lab table
DECLARE @LabId INT;

INSERT INTO Lab (LabName, Active, LabLogin, LabPassword)
VALUES ('Berwick Lab', 1, 'lab123', ' lab123');

-- Retrieve the newly inserted Lab ID
SET @LabId = SCOPE_IDENTITY();

-- This will be used by the Supervisor to log in using login: super, password: super
-- Insert a new record in the Supervisor table using the LabId as a foreign key
INSERT INTO Supervisor (UserName, UserLogin, UserPassword, LabId)
VALUES ('Supervisor Name', 'super', 'super', @LabId);
```

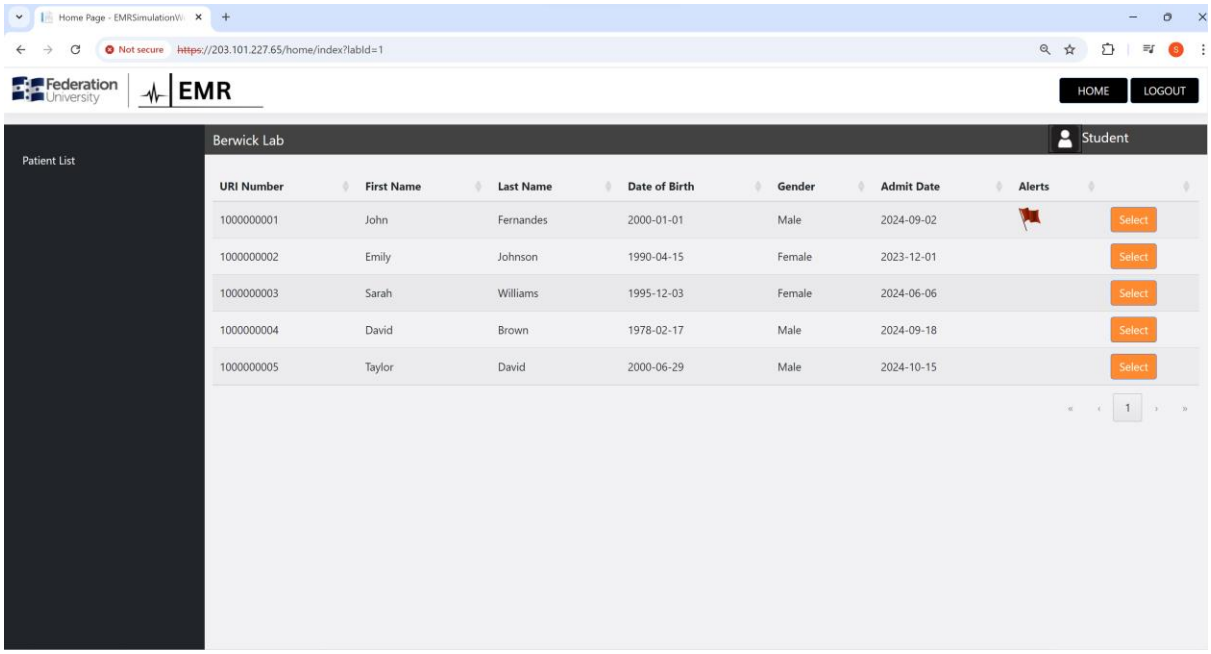
Browse EmrSimulator application

Click on the link under Browse Website as highlighted



Browse the application and try login as Student or Supervisor using login id and password provided.




Home Page - EMRSimulationWi
Not secure
https://203.101.227.65/home/index?labId=1
Federation University
EMR
HOME
LOGOUT
Patient List
Berwick Lab
Student
URI Number
First Name
Last Name
Date of Birth
Gender
Admit Date
Alerts
1000000001 John Fernandes 2000-01-01 Male 2024-09-02 Select
1000000002 Emily Johnson 1990-04-15 Female 2023-12-01 Select
1000000003 Sarah Williams 1995-12-03 Female 2024-06-06 Select
1000000004 David Brown 1978-02-17 Male 2024-09-18 Select
1000000005 Taylor David 2000-06-29 Male 2024-10-15 Select
1