



National
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Configuration Manual

MSc Research Project
Cloud Computing

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**National College of Ireland
Project Submission Sheet
School of Computing**



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Programme:	MSc cloud
Year:	2024-2025
Module:	MSc Research Project
Supervisor:	Shreyas Setlur Arun
Submission Due Date:	11/08/2025
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I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

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Signature:	Vinay Gunda
Date:	11/08/2025

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Configuration Manual

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This guide will help new users set up and run the project. It provides clear, step-by-step instructions for downloading project files, setting up your environment, and running the project. From this guide by following these steps, you can create the project environment or use it as a starting point for your own research.

1. System Requirements

Here, the section describes all the hardware requirements, software of the system, and additional tools needed for this project.

1.1 Hardware Requirements

- **Processor:** Intel(R) Core(TM) i5-2211 CPU @ 1.60GHz 2.11 GHz or similar.
- **Memory (RAM):** 16.0 GB.
- **Storage:** 1.0 TB SSD.

1.2 Software Requirements

- **Operating System:** Microsoft Windows 11.
- **Java Development Kit (JDK):** Version 21.
- **Microsoft SQL Server Management Studio:** Version 22.2.0.

1.3 Tools

- **Android Studio:** Meerkat 2024.3.1.
- **Android Virtual Device (AVD):** Version 36.10.
- **Gradle:** Version 8.10.3.
- **Visual Studio:** Version 2022.

2. Installation and Setup

This section provides detailed instructions for installing the necessary software and setting up the application.

2.1 Installing Android Studio

Android Studio is used for developing the mobile application.

1. Download Android Studio:

Go to the official Android Studio Download Page.

Click the download button to get the installer.

2. Install Android Studio:

Run the downloaded installer.

Choose the location where you want to install Android Studio.

Select the components you want to install (the default options are usually recommended).

Click "Finish" to complete the installation.

3. Configuration:

Open Android Studio.

Follow the setup wizard to complete the initial configuration.

Download any recommended SDK (Software Development Kit) components.

Verify that the Android Virtual Device (AVD) is set up correctly. This allows you to run a virtual Android device for testing.

2.2 Installing Microsoft SQL Server Management Studio

(SSMS) SSMS is used to manage your SQL Server databases.

1. Download The SSMS:

- Visit the official Download Page of SSMS.
- **Download SSMS.**

2. Install SSMS:

- Follow the instructions in the **setup**.
- Click Install and wait for the installation process to finish.

3. Connect to the SQL Server:

- **Enter name** of your SQL server.
- Choose your authentication method (e.g., Windows or SQL Server Authentication) .
- Connect to test and confirm your connection.

2.3 Install V S Code

Visual Studio 2022 is used for the backend API development.

1. **Download V S Code:**

- Visit the official **V S Code Download Page**.
 - Click the download button for Visual Studio.
2. Install V S Code:
- Run the downloaded installer.
 - When prompted, select the necessary **workloads** for this project. Make sure to choose **ASP.NET and the web Technology**.
 - Click "Install" and wait for the installation to complete.

3. Application Setup

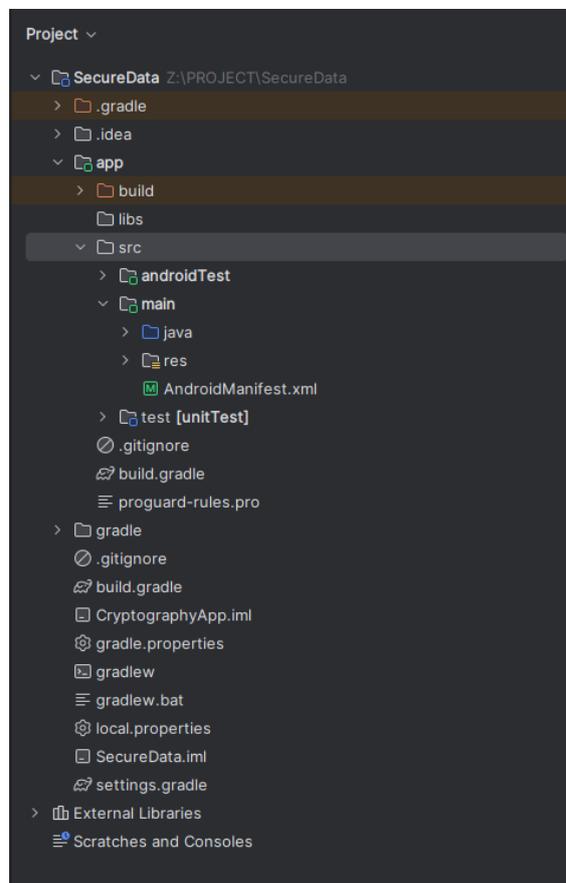


Figure 1.1: File List

This section covers setting up the project application itself.

1. Go to **Android Studio**:

Open the project folder in Android Studio.

2. **Create an Android Virtual Device (AVD)**:

- In the Android Studio, open manager from the right toolbar.

- Click the "+" icon to implement or create a virtual device.
- Select a device (e.g., Pixel 7) and choose the Android version image you want to use.
- Click "Finish."
- Your new AVD will appear in the Device Manager.
- Select and click the "Start" (▶) button to launch the emulator.

3. Log In to the Application:

- Once the application opens on the emulator, **log in using your password.** If you are a new user, you will need to register first and then log in.

4. Upload Files to Cloud:

- On the application's dashboard, you will see two options.
- After uploading, you can view and download the file.

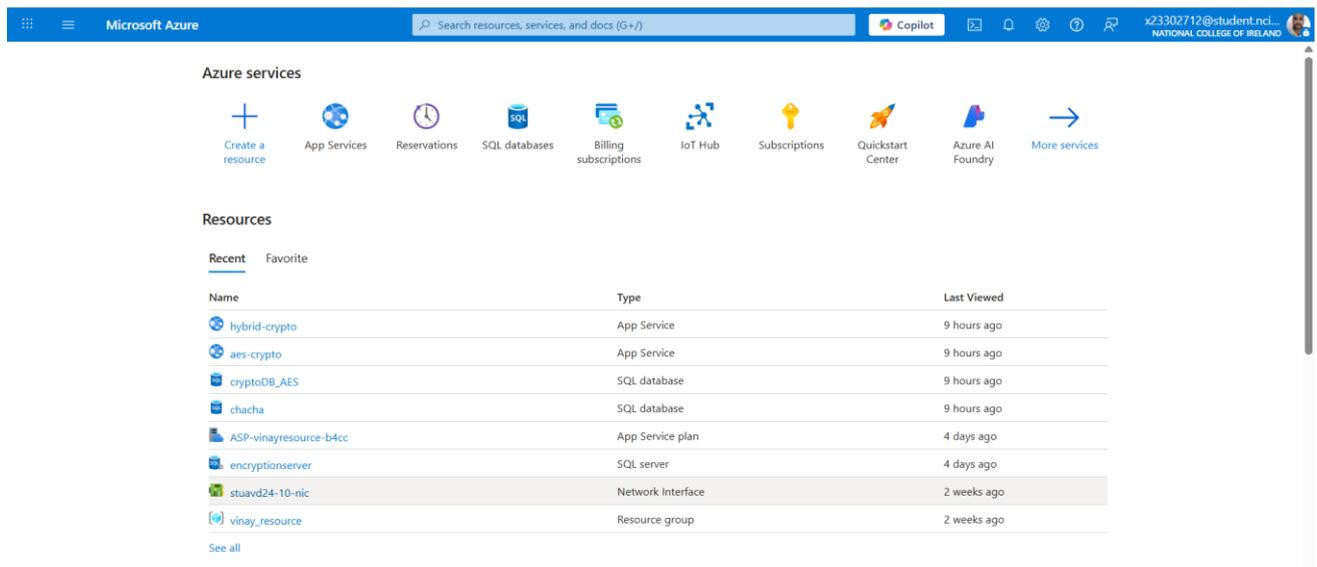


Figure 1.2: Azure DashBoard

4. Server and Database Setup

This section details the setup for the server and database.

1. Create a SQL Database Server:

- (If you haven't already) Download Microsoft SQL Server Management Studio (SSMS), **Follow Section 2.2.**
- Create a SQL Database Server.

2. View User Data:

- All submitted user information and files can be viewed in the database.

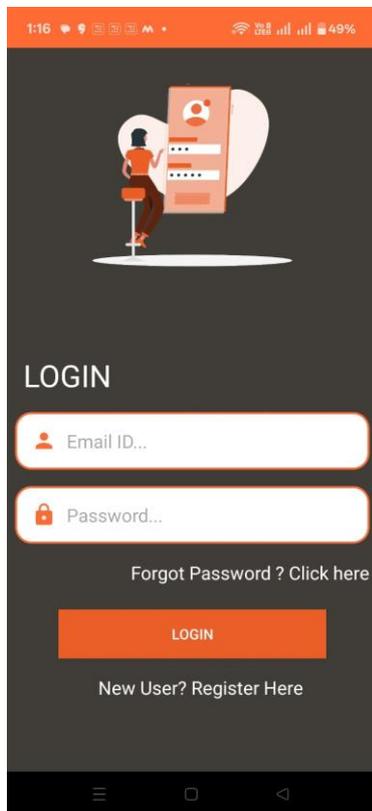


Figure 1.3: User Login

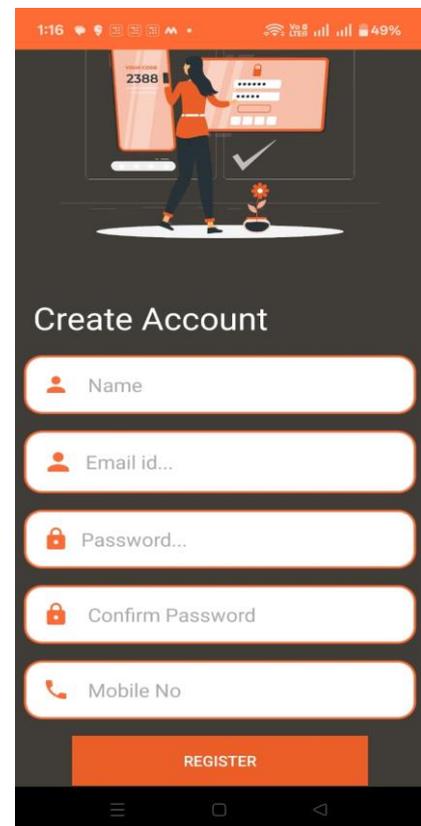


Figure 1.4: Registration

5. Webservice API Setup

This project uses a RESTful API to connect the mobile application to the **cloud**.

1. Backend Script:

- There is backend script file, named `cryptographyServices`, is included **in the project's** zip filr.
- open this folder, ensure you have Visual Studio 2022 installed (refer to Section 2.3).
- Prior to running the API, make sure the libraries are downloaded on your system.

2. Run the API Service:

- Click the **Start button** to run the API service.
- **The Web.config** file have **the configuration** settings for connecting to the database.



Figure 1.5: Home

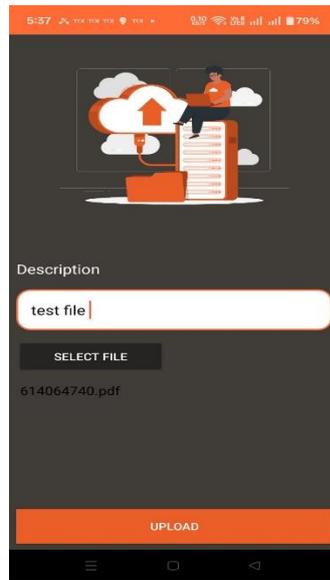


Figure1.6 : Upload Data

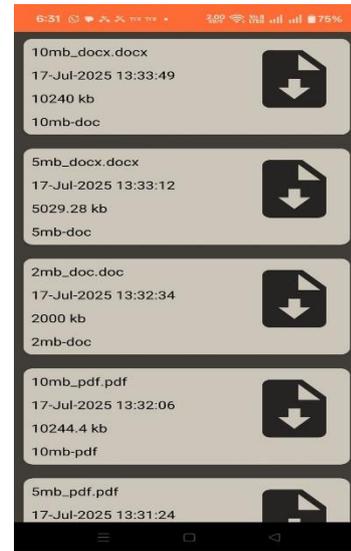


Figure 1.7: Download Data

6. Deployment on Cloud (Azure)

This section explains how to deploy the project on the Azure Cloud platform.

1. Create an Azure Account:

- Create an account in the Azure Cloud your personal or institutional email.
- Once created, the Azure dashboard will display various cloud services offered by Microsoft Azure.

2. Configure App Service:

- Configure the App service within Azure.

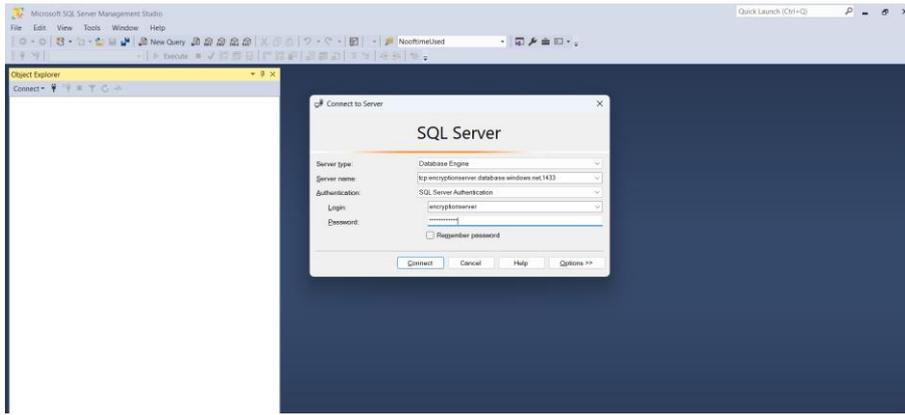
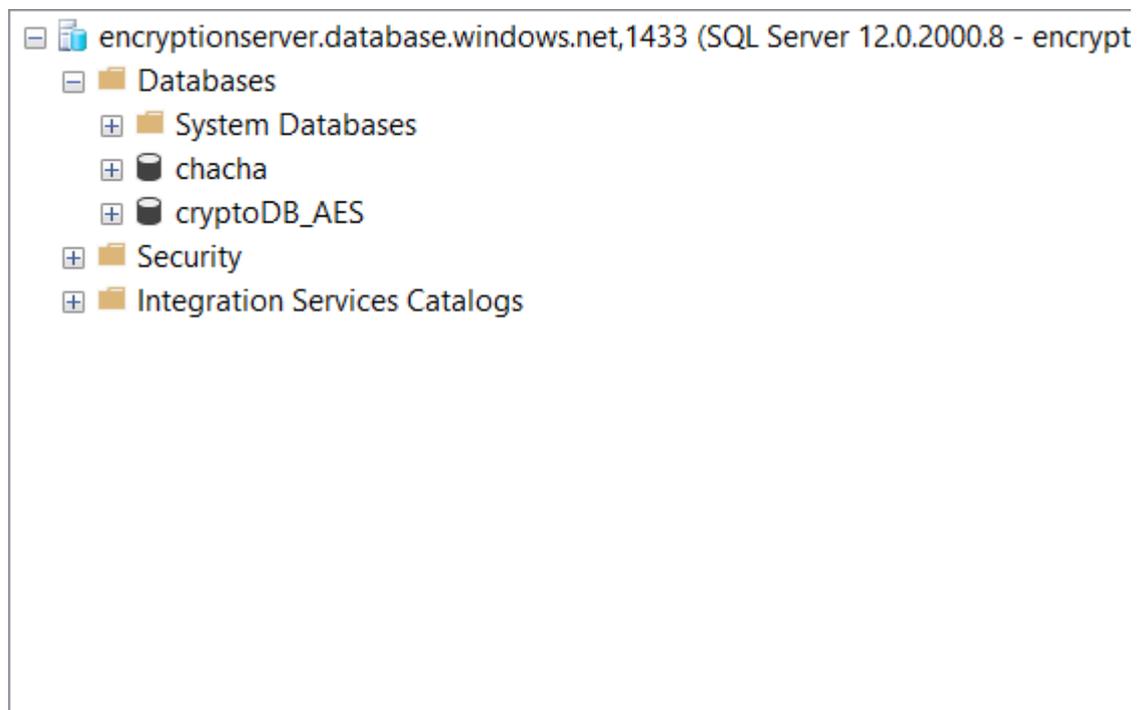


Figure 1.8: SQL Server



1. Databases on the SQL Server.

SQLQuery1.sql - tcp...ryptionserver (78) ✕

```

SELECT TOP (1000) [UserID]
, [Name]
, [EmailID]
, [Password]
, [MobileNo]
FROM [dbo].[mstUser]

```

100 %

Results Messages

	UserID	Name	EmailID	Password	MobileNo
1	1	test	sbomble58@gmail.com	test@123	9594309676
2	2	raju	gvlv7768@gmail.com	gunda123	9951776892
3	3	Charan	charancherry5490@gmail.com	123456789	6281657647
4	4	vinay	vinaygunda7768@gmail.com	223344	8978947566
5	5	gunda	gunda9951@gmail.com	995177	8974563210

Figure 1.9: table

FileID	UserID	Description	FilePath	KeyValue	FileName	EncryptedFileName	FileKey	IV	PrivateKey	HashData
1	1	file	03_Sidd...	yBX9d9wJy6kj8	03_Siddhesh Bomble (HCI assignment) .pdf	03_Siddhesh Bomble (HCI assignment)_enc.pdf	04E9C86C45F895C72057C3AF82A1A75C14F9426FE2FB77C88...	0x8904188972C88A4	995497a5d58a205a8d02003305799f	6d178e2a...
2	1	2mb-img	2mb_img...	v1W4E100uAMdJ	2mb_img.jpg	2mb_img_enc.jpg	04C8A68A1E1C9D07D404CF581483E90204F8EDC3819528AE1...	0x902EF4792C5598C	9782e9e7a76a755a14b739637341	2414b8d7...
3	1	5mb-img	5mb_img...	3qL5kqG5laZuL	5mb_img.jpg	5mb_img_enc.jpg	0c5685533F0483C930E348F4650224481E948E08498D...	0x94D4763FD62C942A	2b0909c5c7a2725527b09a63b613	2d2021f6...
4	1	10mb-img	10mb_i...	CMYK9JMAV6xOZu	10mb_img.jpg	10mb_img_enc.jpg	0x19C85A7047CDD8C0F12107871E2DCC778AD5F3E368D1B...	0x293AD92878909798	ccc3ee52170407088d78e60a345a8	3016d13f...
5	7	10mb-pdf	10mb_p...	QIGas05CwCv4Qz7P	10mb_pdf.pdf	10mb_pdf_enc.pdf	0x34614D03A466CB102A35118535E13A85D78F507C9461A9E7...	0x3893E728DD44D509	75d2ec2bd2e7029e46784084d10bd	3544b63...
6	8	2mb-doc	2mb_do...	qjH3aF3BaWpJw	2mb_doc.doc	2mb_doc_enc.doc	0x1F84233A3E28FCDE4349736088CC6708C28F40241692685...	0x19570A38D9A684F	9985e4ace0a62b8e6898a0909e7289	9792790f...
7	11	medical certificate	Medicov...	jhZ0kq7Qkex9i	Medicover Superior IPID.pdf	Medicover Superior IPID_enc.pdf	0xBEF77FD7C3259EFC80E7794028FC17C2A286FD2DB79E66...	0x48398853DE04858	71b65af09442e8074e35b905747e24	c7e07095...
8	13	4	Registra...	pfTQ7OQ0kHrHX	Registration-Form-Sept-2024_edited.pdf	Registration-Form-Sept-2024_edited_enc.pdf	0x9E947CE9803BE04692954E4D08BC05105CA9533F2690F37...	0x71311B960D9473C8	1299417a268cd76e9f98a5428ab904	81De208...
9	14	2	vinay file	8836H6DwCUM68	09.jpg	09_enc.jpg	0x5C026689C4DF8F9934E368D18C4B495935A19D040D333...	0x2D5C17D0FC06306E	7aa9a71a56cc374b1954283859e765	68a4e8c1...
10	14	2	vinay file	87h...8b...t...t...t...	01.png	01.png	0x5E96C77A88B6216A8E768DF182B0A60E9F9EEEA17581A...	0x4A48E778A6A0793A	8e83a6e147f9d1700a4e0c0190c41b	877914d1...

Figure 1.10: Data table

3. API Web Service URL:

- The API Web Service URL will be provided for use in the application.

4. Manage SQL Database in Azure:

- **Click on it** to view the data stored within.

```

Service1.svc.cs
CryptographyService
using System;
using System.Collections.Generic;
using System.Configuration;
using System.Data;
using System.Data.SqlClient;
using System.Diagnostics;
using System.IO;
using System.Linq;
using System.Net.Mail;
using System.Runtime.Serialization;
using System.Security.Cryptography;
using System.ServiceModel;
using System.ServiceModel.Activation;
using System.ServiceModel.Web;
using System.Text;
using System.Web;

```

Figure 1.11: Libraries

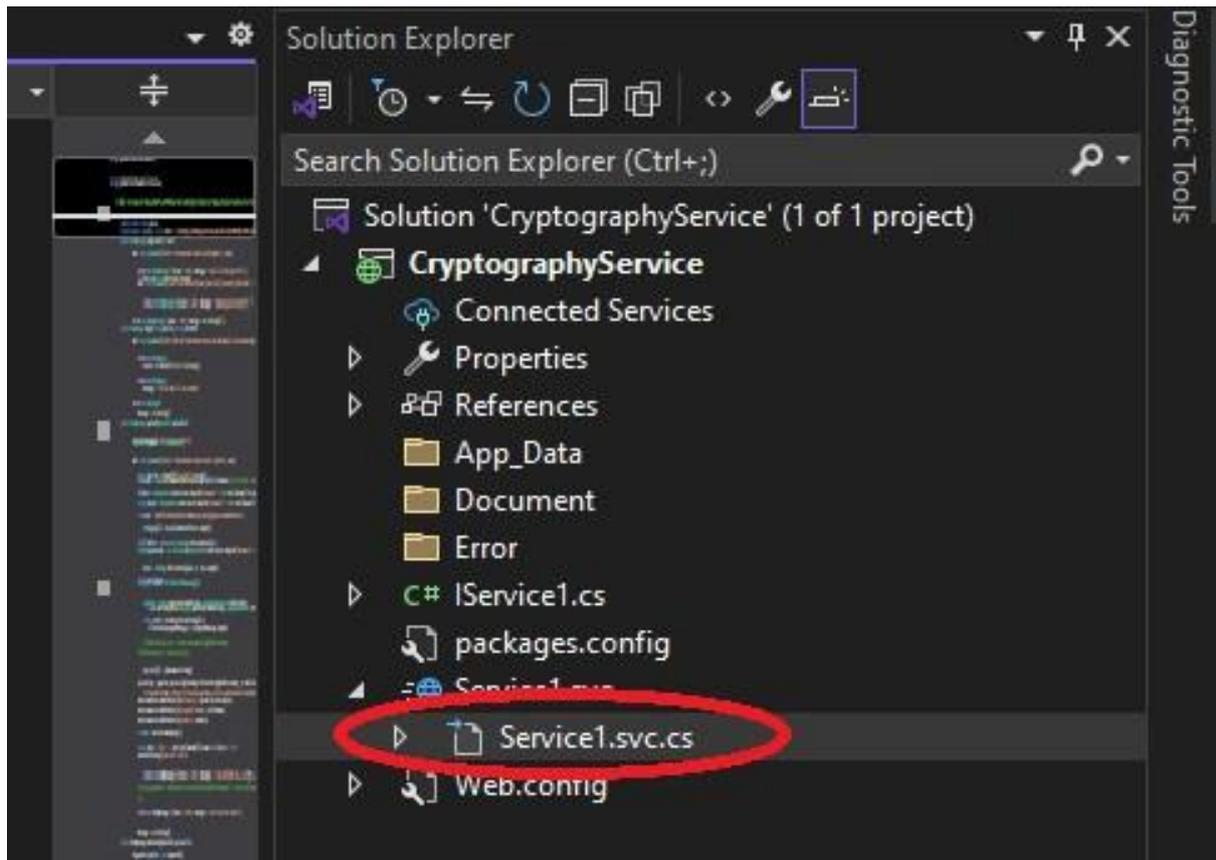


Figure 1.12: WebAPI service

Create Web App ...

Basics Database Deployment Networking Monitor + secure Tags Review + create

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. [Learn more](#)

Project Details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Resource Group * ⓘ [Create new](#)

Instance Details

Name .azurewebsites.net

Secure unique default hostname on. [More about this update](#)

Publish * Code Container

Figure 1.13: App Service Configuration

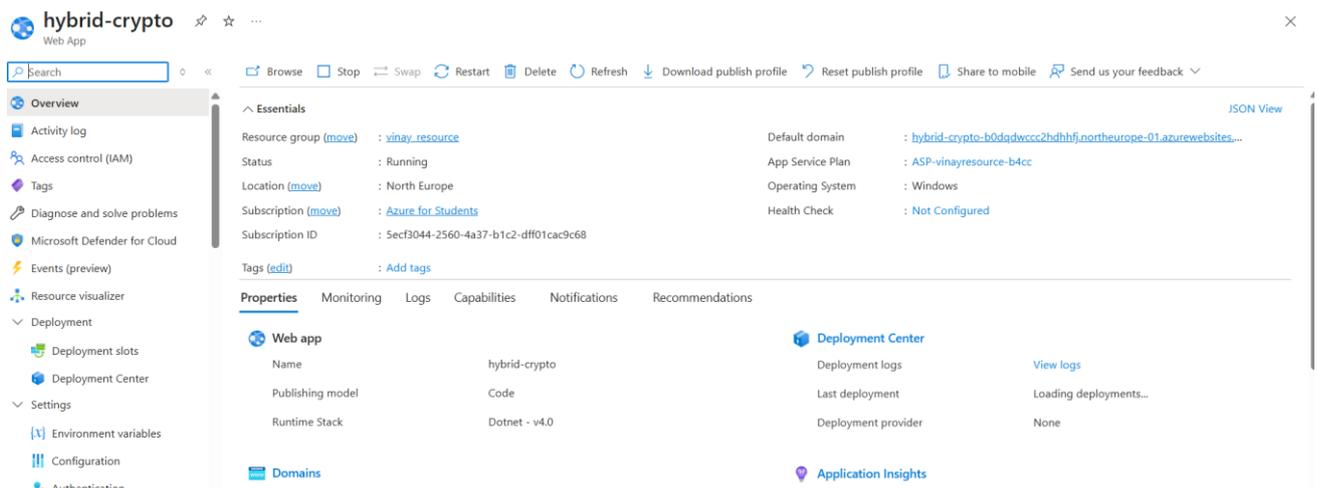
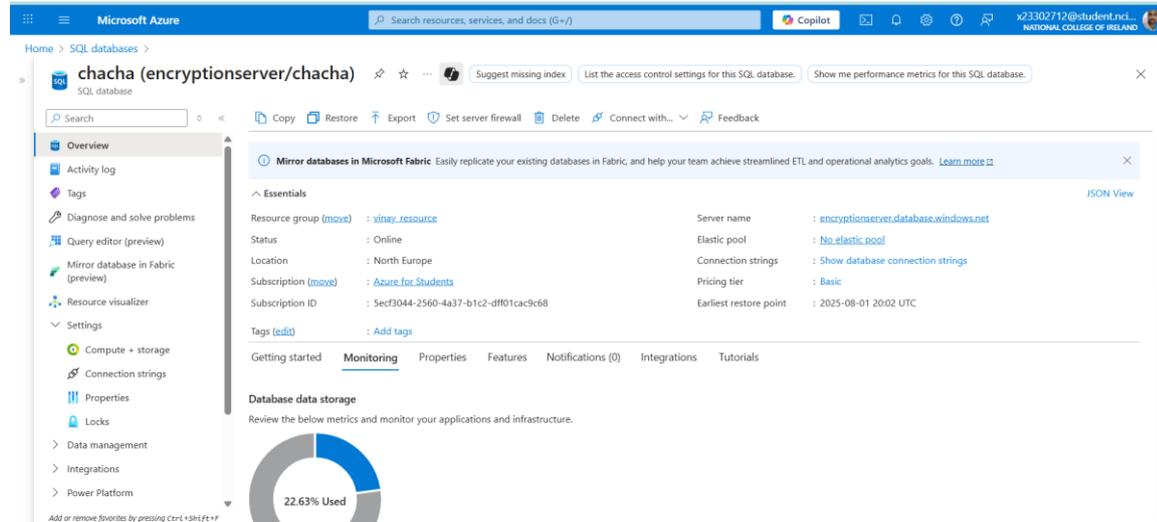


Figure 1.14: Domain URL

Create SQL Server:



Home > SQL databases >

Create SQL Database

Microsoft

resources

Database name *

Server * ▼

[Create new](#)

Want to use SQL elastic pool? Yes No

Workload environment Development Production

i Default settings provided for Production workloads. Configurations can be modified as needed.

Compute + storage *
General Purpose
 Standard-series (Gen5), 2 vCores, 32 GB storage, zone redundant disabled
[Configure database](#)

Backup storage redundancy

[Review + create](#)

[Next : Networking >](#)

Figure 1.15: Azure SQL database Dashboard

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