

FIT5032 Studio 11

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TOPICS

- Deploying in Cloud using App Services
- Creating Unit Tests

INSTRUCTIONS

- Form a group of 2-3 students.

EFOLIO TASK 11.1 (PASS AND CREDIT LEVEL)

DESCRIPTION:

- Explore differences between Continuous Integration and Continuous Deployment
- Deploy an ASP.NET MVC Project in the Azure Cloud

WHAT TO SUBMIT (INDIVIDUAL):

- A brief report on differences between CI and CD
- Screenshot of webpage deployed in the Azure Cloud and URL

EVALUATION CRITERIA:

- Correct differences between CI and CD
- Azure hosting is working

EFOLIO TASK 11.2 (DISTINCTION AND HIGH DISTINCTION LEVEL)

DESCRIPTION:

- Research and list five different Software Testing approaches used in the Agile software development industry
- Create Unit Tests for ASP.Net MVC

WHAT TO SUBMIT:

- Submit a list of five different Software Testing approaches
- Screenshot of Unit Tests for ASP.Net MVC

EVALUATION CRITERIA:

- Correct list of Software Testing approaches
- Correct Unit Testing Framework usage

STUDIO ACTIVITIES

HOSTING AN ASP.NET MVC PROJECT IN AZURE

Important information regarding the credit provided by Microsoft

There are two options for using Azure services:

1. Sign up as a Student

<https://azure.microsoft.com/en-au/free/students/>

This option requires you to use your Monash account to sign up, and you will get 100 dollar credit for free. There will be no expiration date for the credit.

Please be reminded that if you are using this service, it would be best you turn off your Virtual machine services whenever you are not using it.

Microsoft will charge you based on virtual machine's total running time, so if you have 2 virtual machines running at the same time, the cost of running the virtual machine will be doubled.

2. Sign up using Microsoft account

<https://azure.microsoft.com/en-au/free/>

The credit provided by Microsoft is 280 dollars for 30 days, after the time, you will need to upgrade to a pay-as-you-go subscription (Which requires you to provide credit/debit card detail) to get continued access to free products – some for the first 12 months, and others that are always free.

Virtual machine option used in this tutorial is one of the services that will be free after 30 days limit reach.

This option does not need you to use your Monash account, but you need to be careful about the expiration date, you will not be able to use your services until you provide debit/ credit card detail, and please remember to cancel the subscription when it is close to the one year free period.

You might be charged for money if you forget the expiration day and unfortunately, Monash does not compensate for this cost.

The cost structure is the same as option 1.

What is Azure

Microsoft Azure is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through a global network of Microsoft-managed data centres.

It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) and supports many different programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems.

Under this unit, we are mainly looking for a Windows virtual machine to host your ASP.Net project files. The other product options are considered too expensive and over qualify.

What is domain name

A domain name is an identification string that defines a realm of administrative autonomy, authority or control within the Internet. For example, Google.com.au is a domain name.

Microsoft Azure service will provide a default domain name such as: YourProjectName.azurewebsites.com, however, if you wish to have a more user-friendly and a more customized domain, you need to use register domain by yourself.

Register for an Azure service and configurations:

As a student, you could register your account through the following link (Please choose Azure free account):

<https://azure.microsoft.com/en-au/free/students/>

Visit Azure Portal: <https://portal.azure.com/>

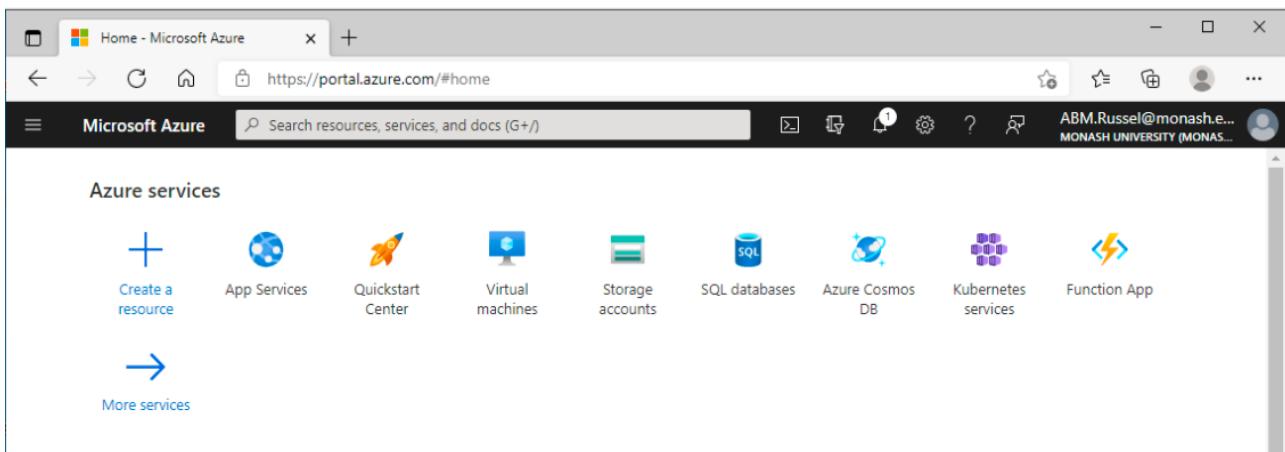


Figure 1: Azure Portal

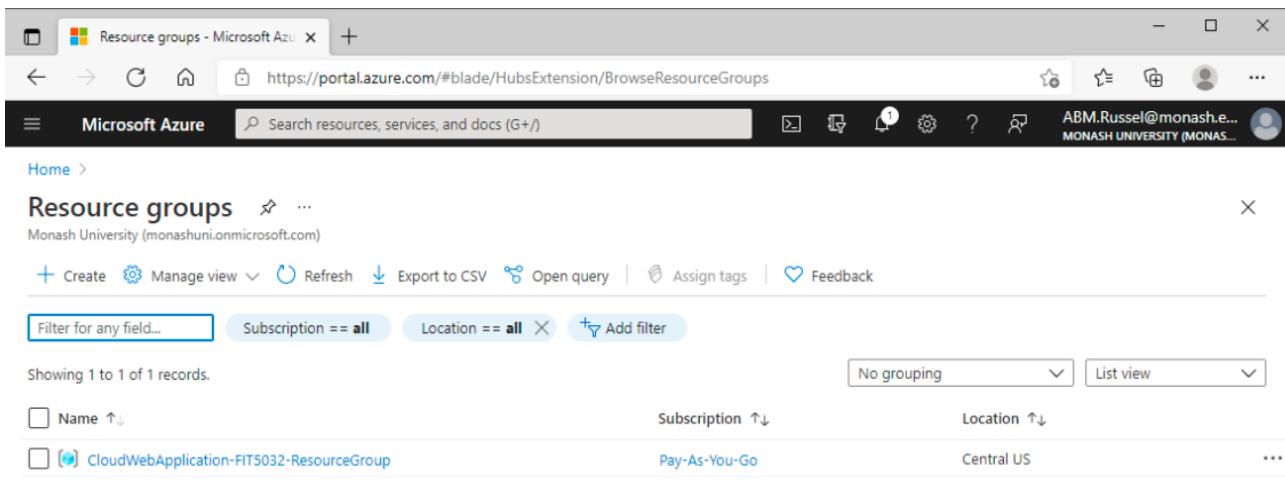
A screenshot of the Microsoft Azure portal "Resource groups" page. The browser title bar says "Resource groups - Microsoft Azure". The address bar shows the URL "https://portal.azure.com/#blade/HubsExtension/BrowseResourceGroups". The top navigation bar includes "Microsoft Azure", a search bar, and user information "ABM.Russel@monash.e... MONASH UNIVERSITY (MONAS...)". The page shows a table of resource groups. The columns are "Name" (with a sorting arrow), "Subscription" (sorted by Pay-As-You-Go), and "Location" (sorted by Central US). One record is listed: "CloudWebApplication-FIT5032-ResourceGroup". At the bottom right, there are buttons for "No grouping" and "List view".

Figure 2: Azure Portal Resource Groups

Microsoft Azure Search resources, services, and docs (G+/-)

Home > App Services > Create Web App

Basics Deployment (Preview) Monitoring 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 * Pay-As-You-Go

Resource Group * CloudWebApplication-FIT5032-ResourceGroup [Create new](#)

Instance Details

Name * FIT5032MyAzure.azurewebsites.net

Publish * Code Docker Container

Runtime stack * ASP.NET V4.8

Operating System * Linux Windows

App Service Plan

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Windows Plan (Australia Southeast) * CloudWebApplication-FIT5032-Plan (F1) [Create new](#)

Sku and size * **Free F1**
Shared infrastructure, 1 GB memory

Figure 3: Azure Portal App Services using Free F1 plan

Microsoft Azure Search resources, services, and docs (G+/-)

Dashboard Last updated: 10 minutes ago

+ New dashboard Refresh Full screen Edit Share Download Clone Assign tags Delete Feedback

Auto refresh : **Off**

All resources All subscriptions Refresh

- FIT5032MyAzure App Service
- Lecture11b App Service
- CloudWebApplication-FIT50... App Service plan
- WebAPILecture11 App Service
- CloudWebApplication-FIT50... App Service
- WebApplication11a App Service
- WebApplication11b App Service

See more...

Quickstarts + tutorials

- Windows Virtual Machines** Provision Windows Server, SQL Server, SharePoint VMs
- Linux Virtual Machines** Provision Ubuntu, Red Hat, CentOS, SUSE, CoreOS VMs
- App Service** Create Web Apps using .NET, Java, Node.js, Python, PHP
- Functions** Process events with a serverless code architecture
- SQL Database** Managed relational SQL Database as a Service

Figure 4: Azure Portal Dashboard

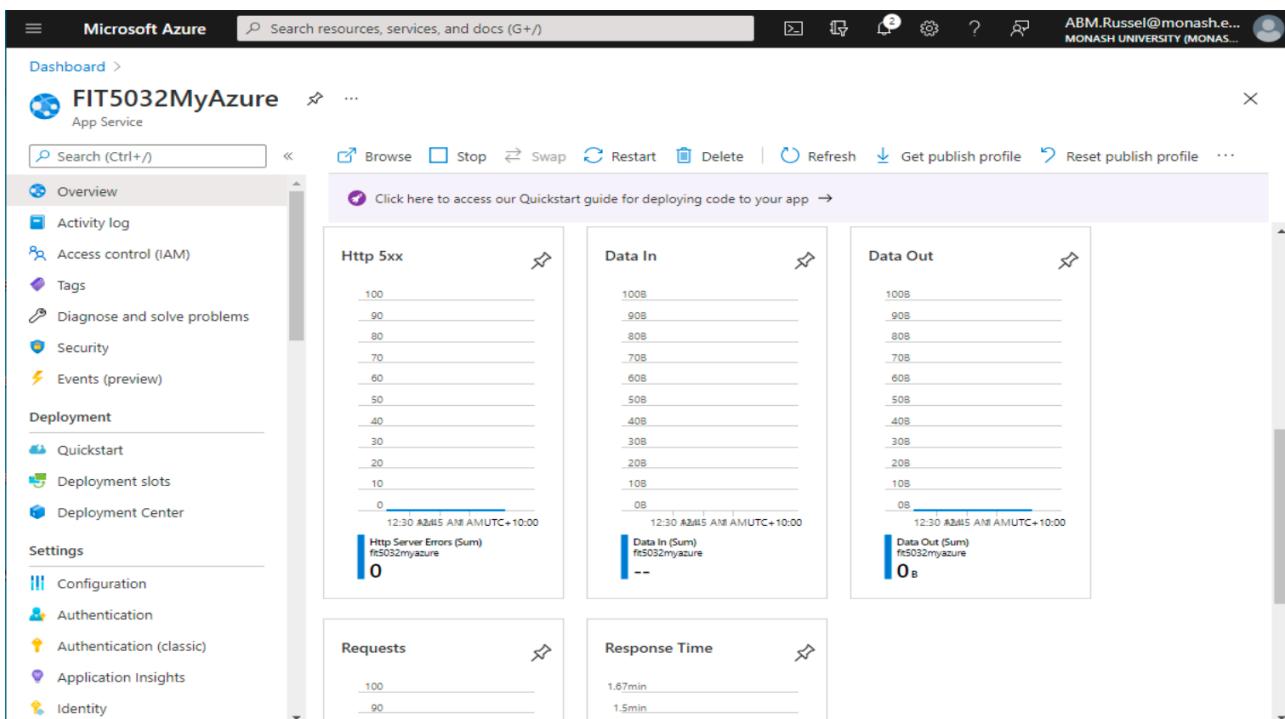


Figure 5: Monitor Azure App Services performance

Publish your ASP.NET Web Application (NOSQL)

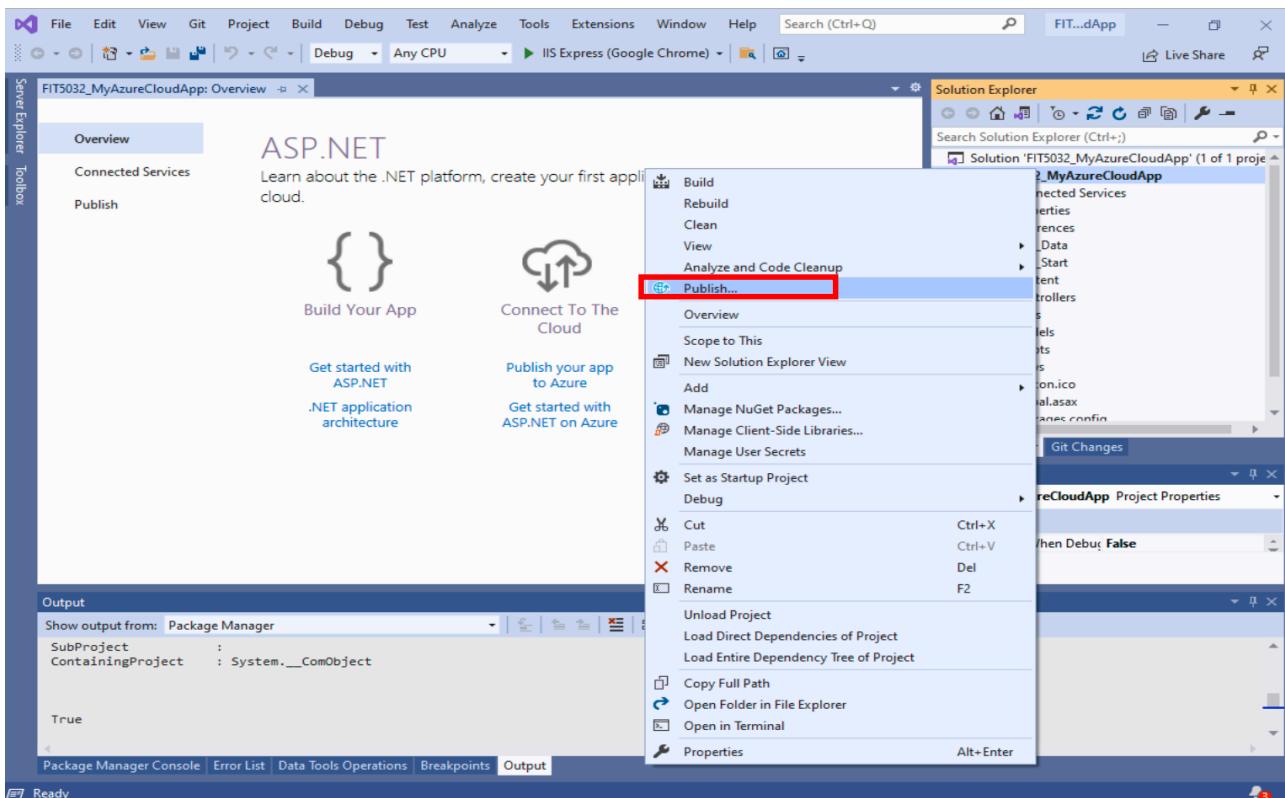


Figure 6: Select Publish

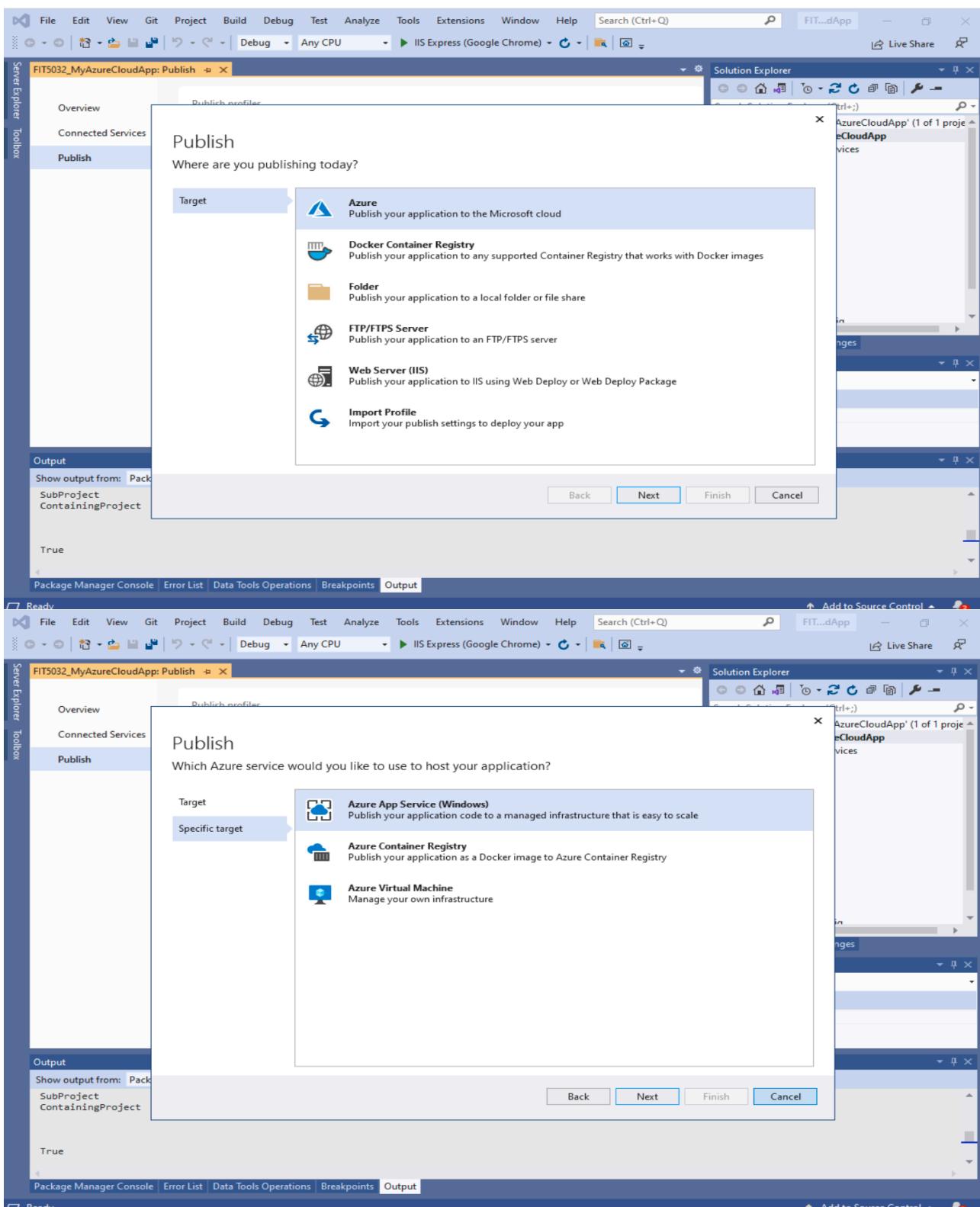


Figure 7: Pick a publish target

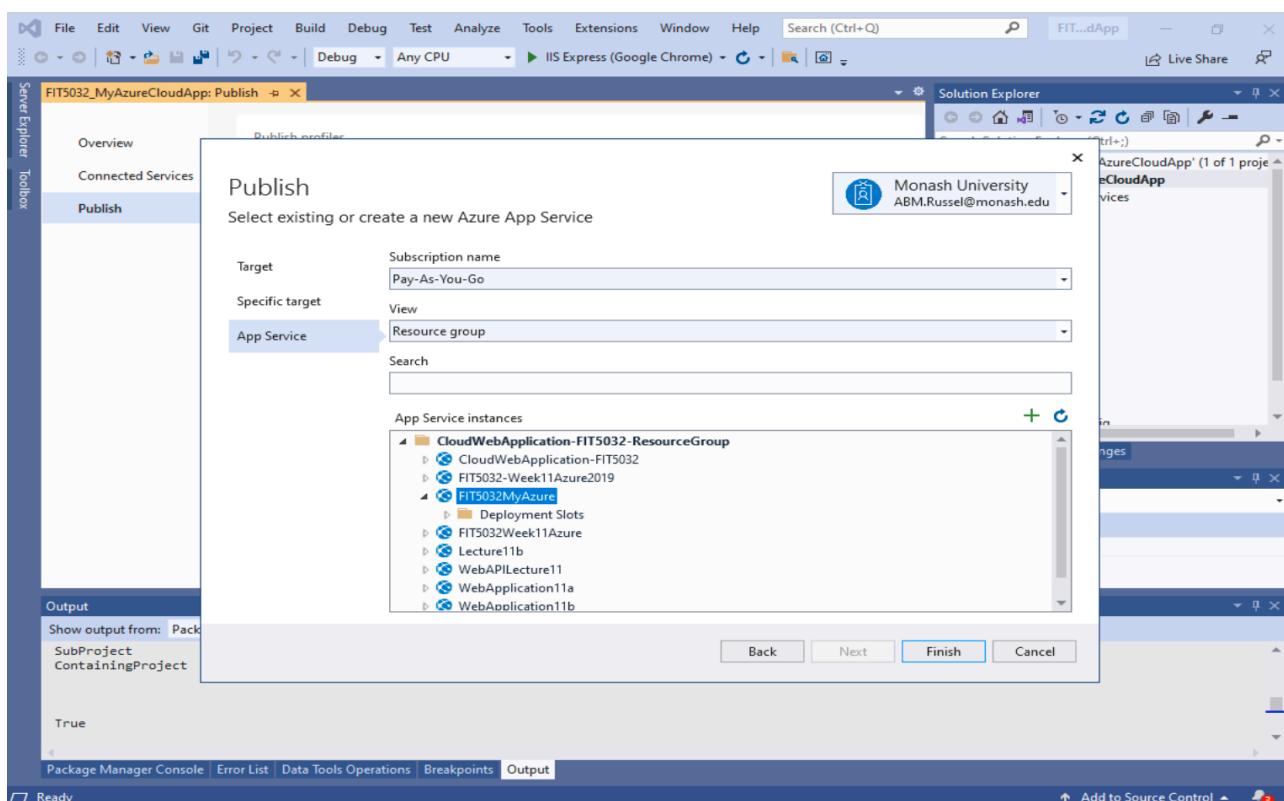


Figure 8: Sign-in and select publish target

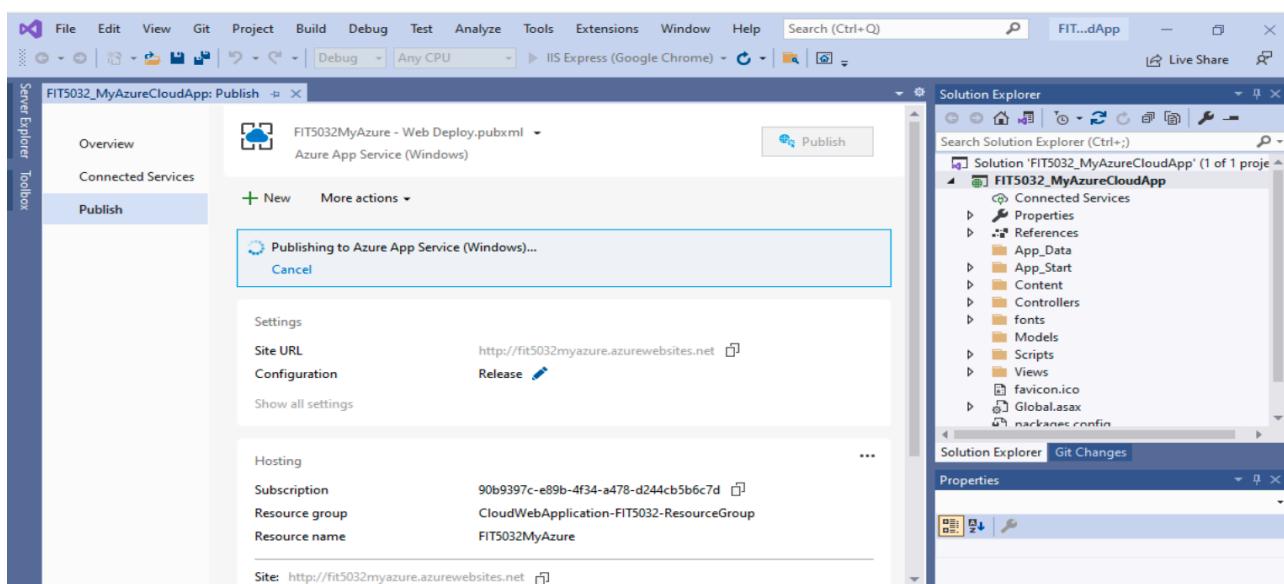


Figure 9: Azure publish in progress

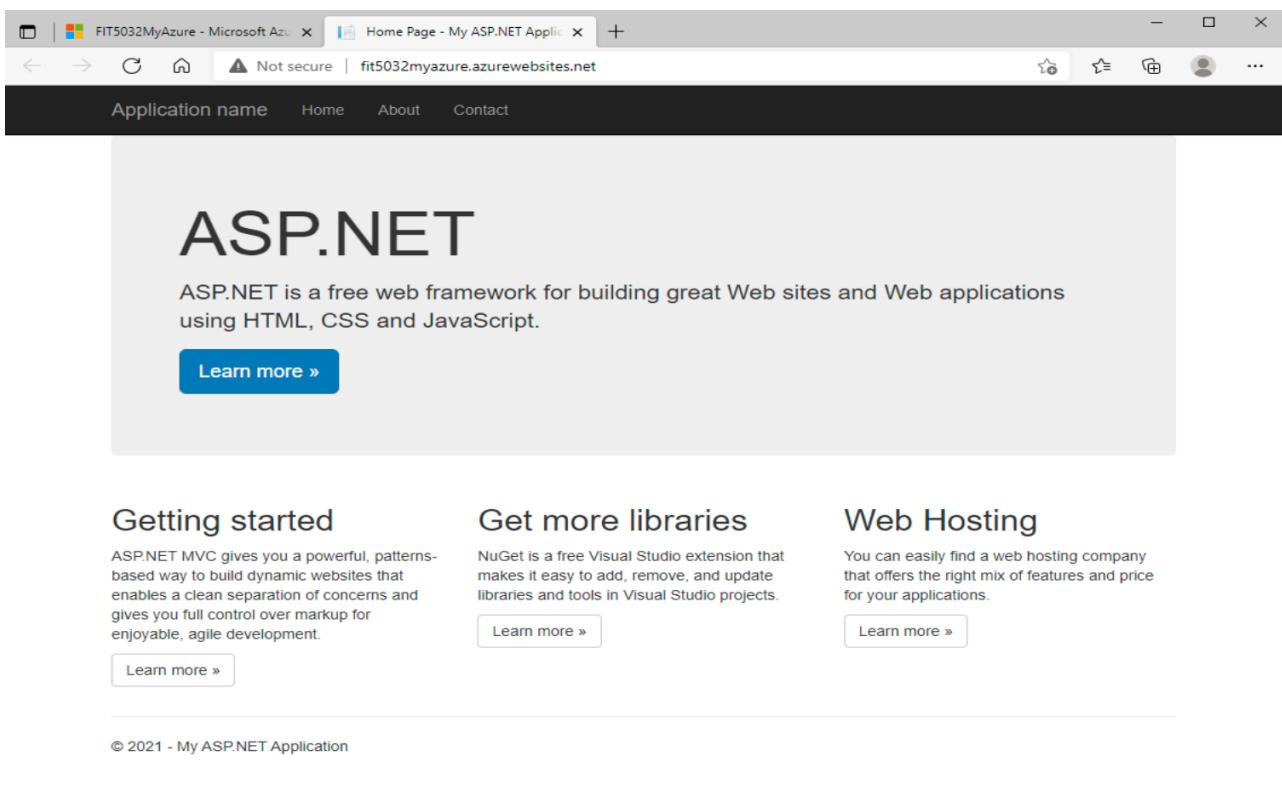


Figure 10: ASP.NET MVC Web Application deployed in Azure Cloud

CREATING UNIT TESTS FOR ASP.NET MVC

Step 1 – Create a new project

Create a new Project on MS Visual Studio (Example is using .NET Framework. However, you may choose to use .NET CORE for this task):

Create a new project

Recent project templates

Template	Language	Platform	Description
ASP.NET Web Application (.NET Framework)	C#	Windows	A project template for creating an ASP.NET Core application with Angular
ASP.NET Core Web API	C#	Windows	A project template for creating an ASP.NET Core application with React.js
ASP.NET Core Web App (Model-View-Controller)	C#	Windows	A project template for creating an ASP.NET Core application with React.js and Redux
NUnit Test Project	C#	Windows	A project that contains NUnit tests that can run on .NET Core on Windows, Linux and Mac OS.
ASP.NET Web Application (.NET Framework)	C#	Windows	Project templates for creating ASP.NET applications. You can create ASP.NET Web Forms, MVC, or Web API applications and add many other features in ASP.NET.
Web Driver Test for Edge (.NET Core)	C#	Windows	A project that contains unit tests that can automate UI testing of web sites within Edge browser (using Microsoft WebDriver).
Web Driver Test for Edge (.NET Framework)	C#	Windows	A project that contains unit tests that can automate UI testing of web sites within Edge browser (using Microsoft WebDriver).

Search for templates (Alt+S) Clear all

Back Next

Figure 11: Visual Studio Community Edition 2019 Create New ASP.NET Web Application (.NET Framework)

Step 2 – Configure your new project

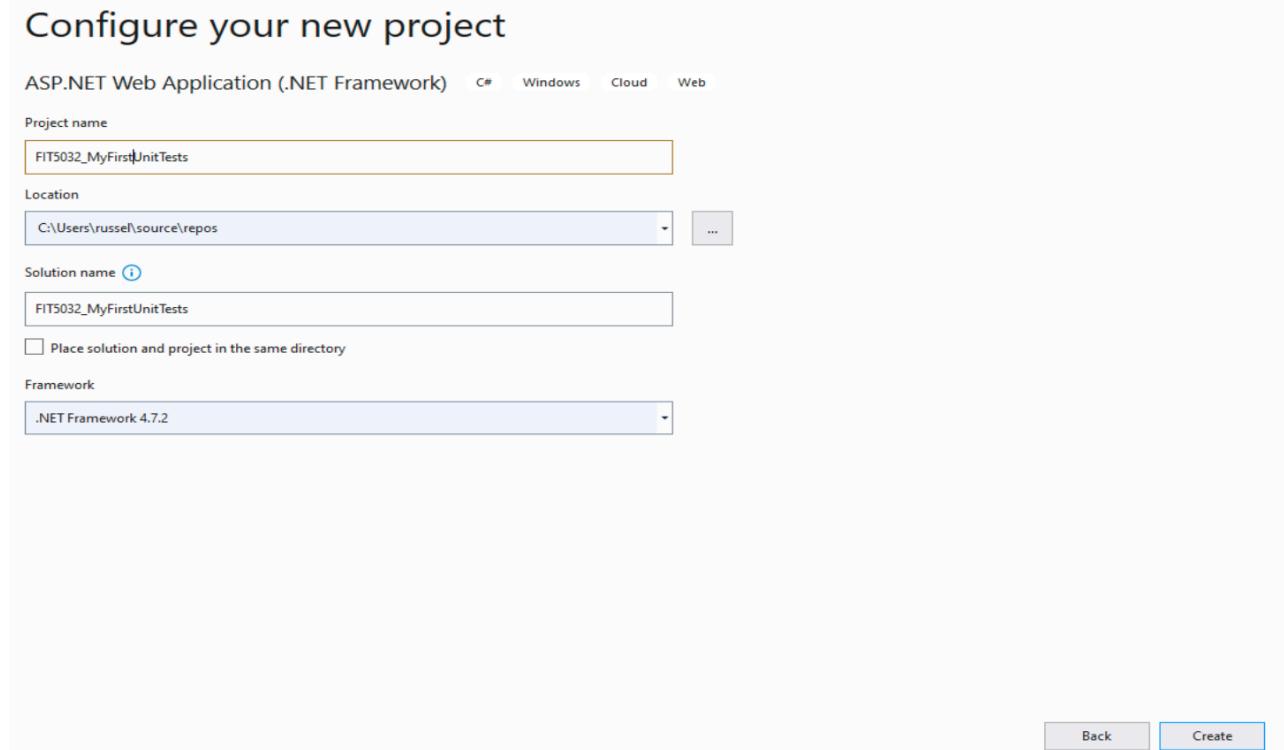


Figure 12: Visual Studio Community Edition 2019 Configure New Project

Step 3 – Create a new ASP.NET Web Application with Unit Tests

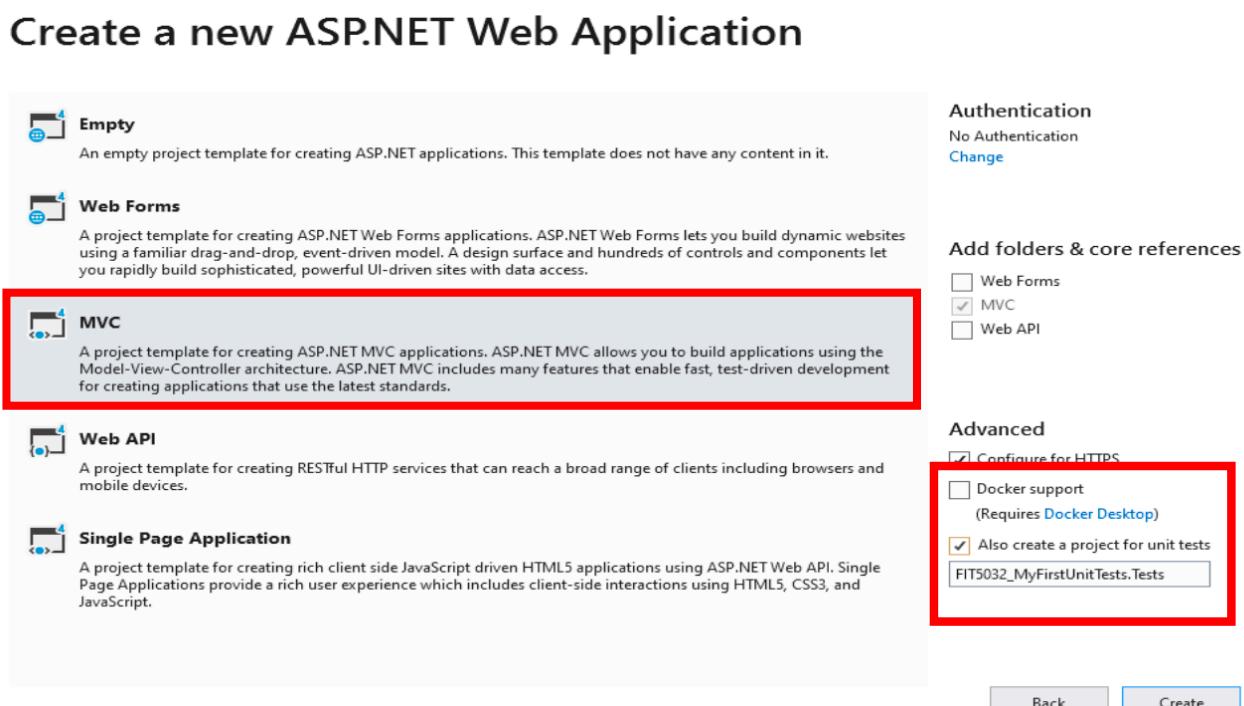


Figure 13: Create MVC Project with Unit Tests

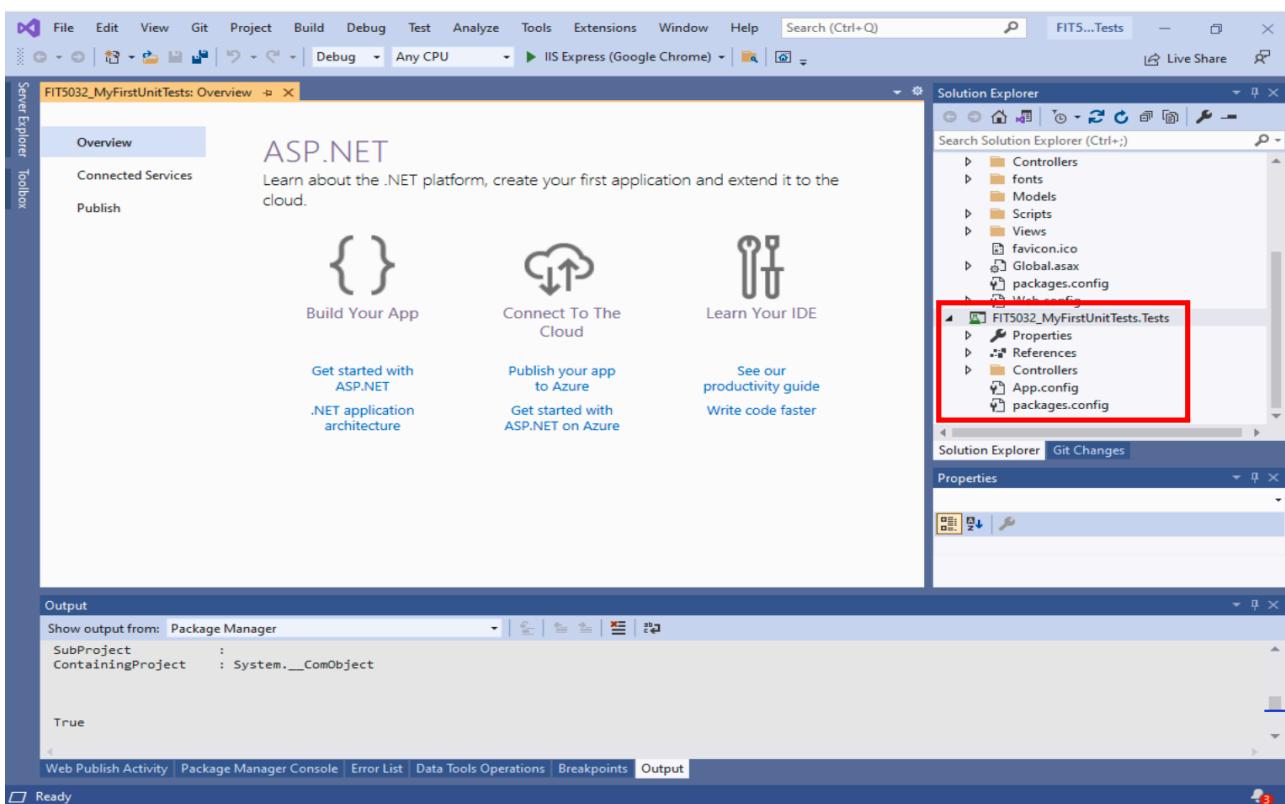


Figure 14: Visual Studio Community Edition 2019 MVC Project Overview with Unit Tests

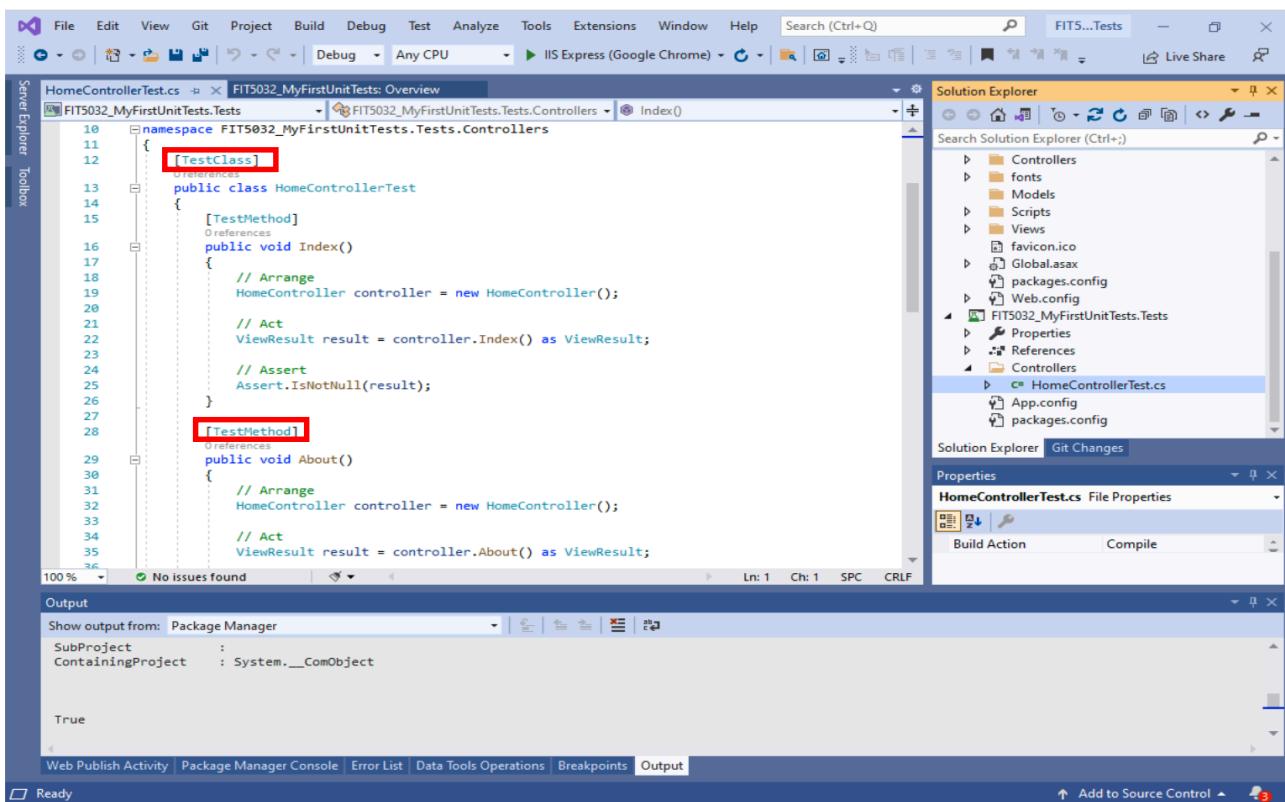


Figure 15: HomeControllerTest

Step 4 – Run Unit Tests using **Test -> Run -> All Tests**

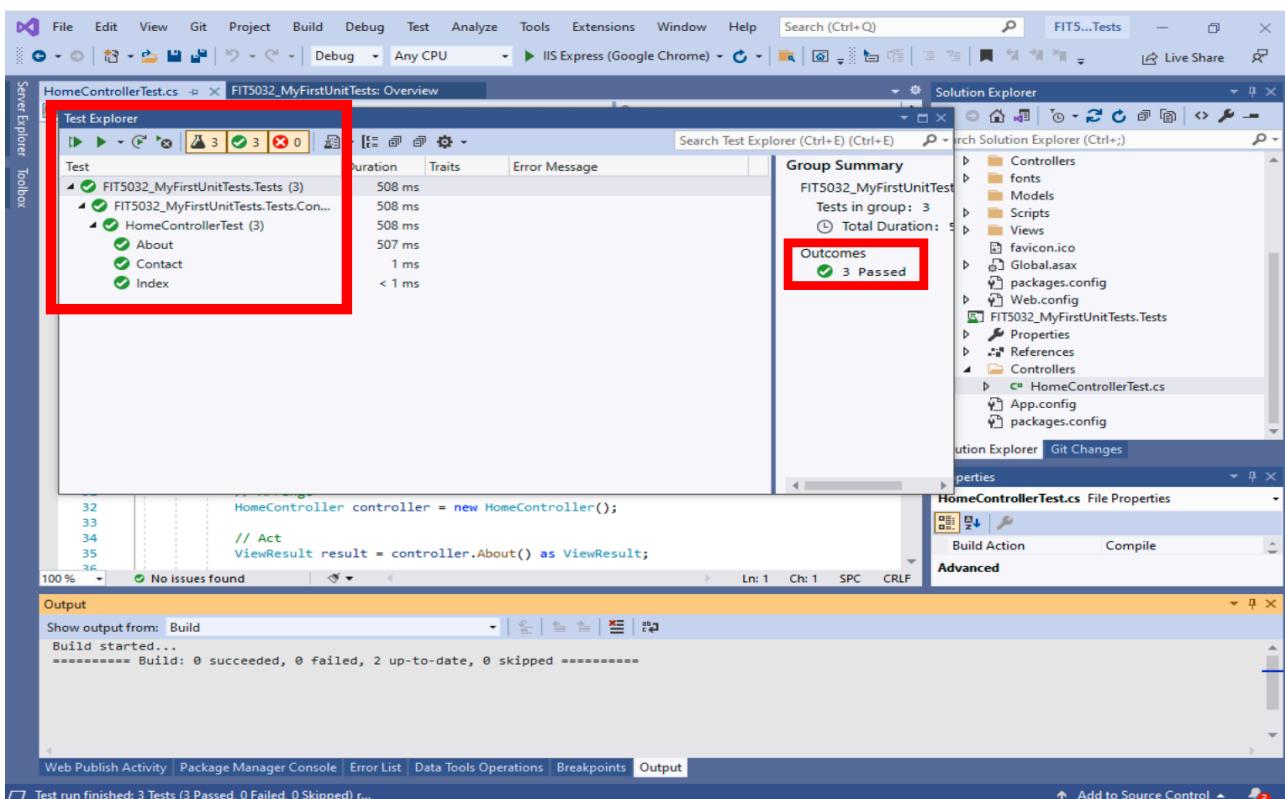


Figure 16: All Unit Tests results