INFS3204/7204 Practical 8 – Cloud Computing 2

Practical guidelines:

1. Practical sessions are designed to help you gain industry level experience in different concepts relevant to the course structure.
2. You must submit your prac code & any supporting documents in a zip file before your allocated prac session expires.
3. Read the instructions carefully given in each prac task.
4. Microsoft MSDN References are provided to help student better understand the core concepts covered in this practical.
5. This prac demands time. It is assumed that students will be working on this prac before they attend their prac sessions.
6. For help, don't hesitate to contact prac tutor/on discussion board.

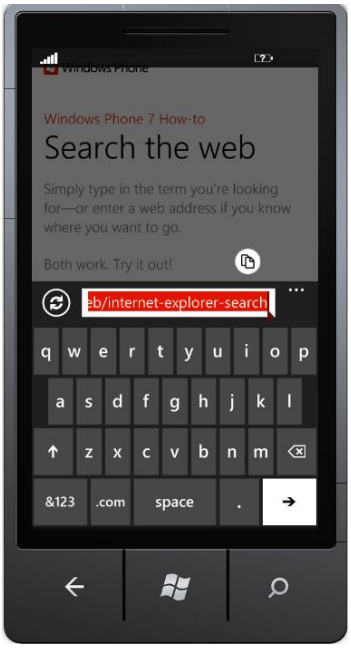
Practical session:

The purpose of this prac is to gain hands on experience in creating, deploying and managing different cloud components (see below screenshots) involved in the Cloud Management Portal. For Practical 8, we will cover the following concepts:

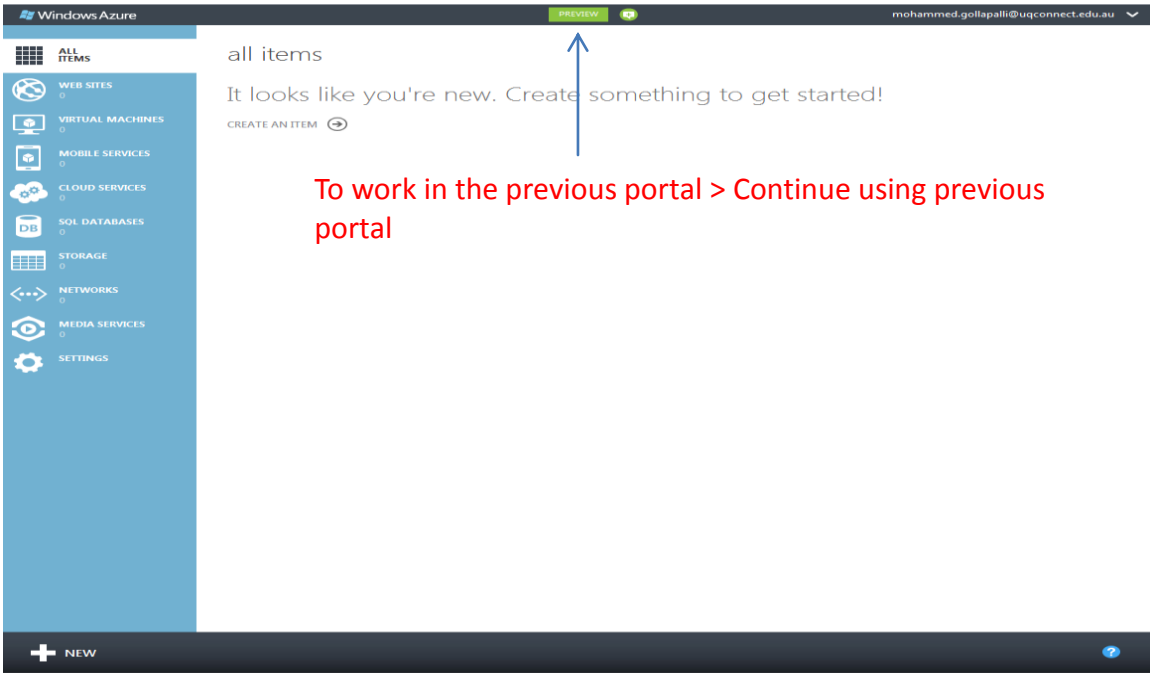
1. Creating, configuring and managing Virtual Machines (VMs) on the Cloud;
2. Creating, configuring and managing Windows Mobile Service on the Cloud and
3. Building a simple Windows Phone application performing CRUD (Create, Read, Update and Delete) operations through Windows Azure Mobile/Web Service communications.

Note:

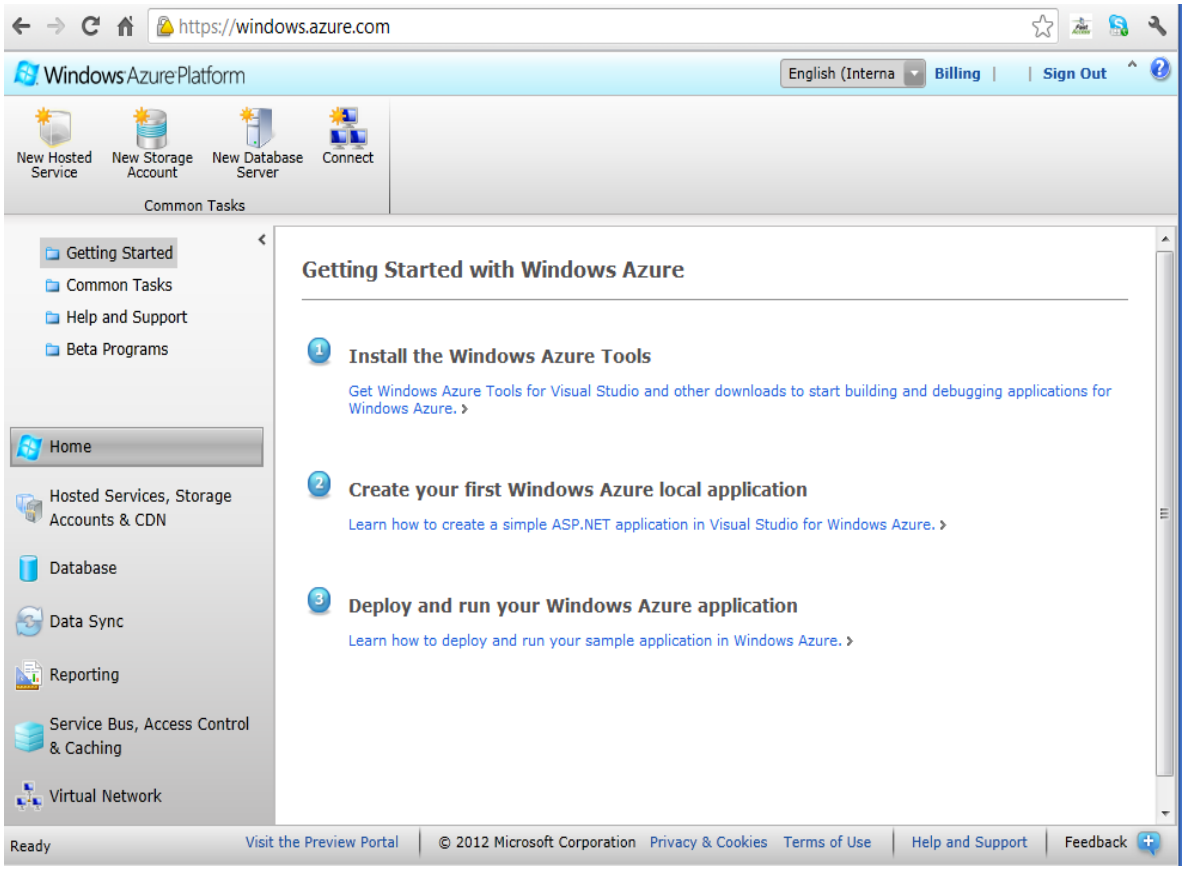
1. You can use the new preview portal (default) or the old version of portal for this practical.
2. For task 2 & 3 of this practical, you don't need to have windows mobile phone. Instead, you can use windows emulator as shown below.
3. You are welcome to build task 2 & 3 in Visual Studio 2012 if you are working on your laptops.



New Portal Screenshot:



Old Portal Screenshot:



There are 10 marks for this prac, allocated as follows:

Task 1: Virtual Machines & Load Balancing on the Cloud (3.5 marks)

The purpose of this task is to learn how to create and manage multiple virtual machines (VMs) and tune load balancing in order to manage traffic, and perform data management activities through from VMs into SQL Azure Cloud.

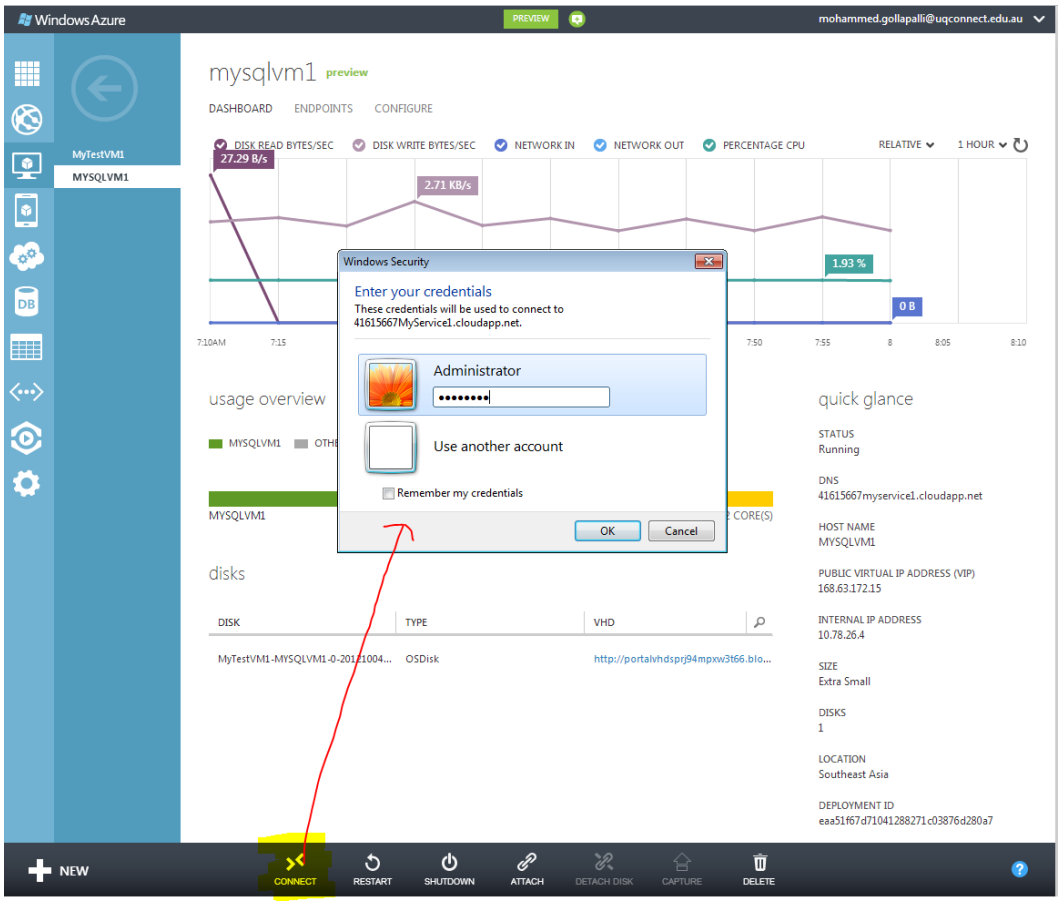
Description:

Create a new standalone virtual network using the Gallery (you can select any windows 2008 version) with the service name as {your_student_id}VNService. After the virtual network has been created, connect as admin. You will see a brand new VM created similar to below screenshot. To get familiar with the VM, It is recommended to add a new feature\server role (such as IIS Web Server) of your choice and set up its configuration in this new VM (optional).

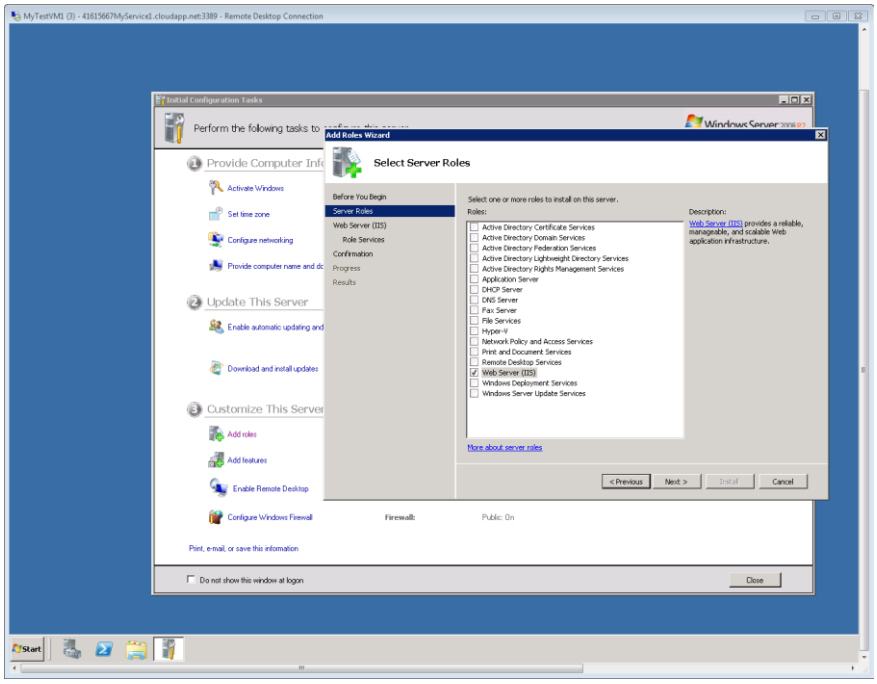
Now back in the Windows Azure Management, add an endpoint to your aforementioned VM and create another SQL Server VM but select load-balancing traffic through your newly created endpoint (see MSDN References to know more about load-balancing). The aim is to facilitate communication between different Cloud VMs and to maintain high-availability of the machines.

In the SQL Server VM, create a new database and import car rentals schema (tables & records) that was provided in Prac 5. Then, migrate imported database from SQL Server VM into SQL Azure Cloud.

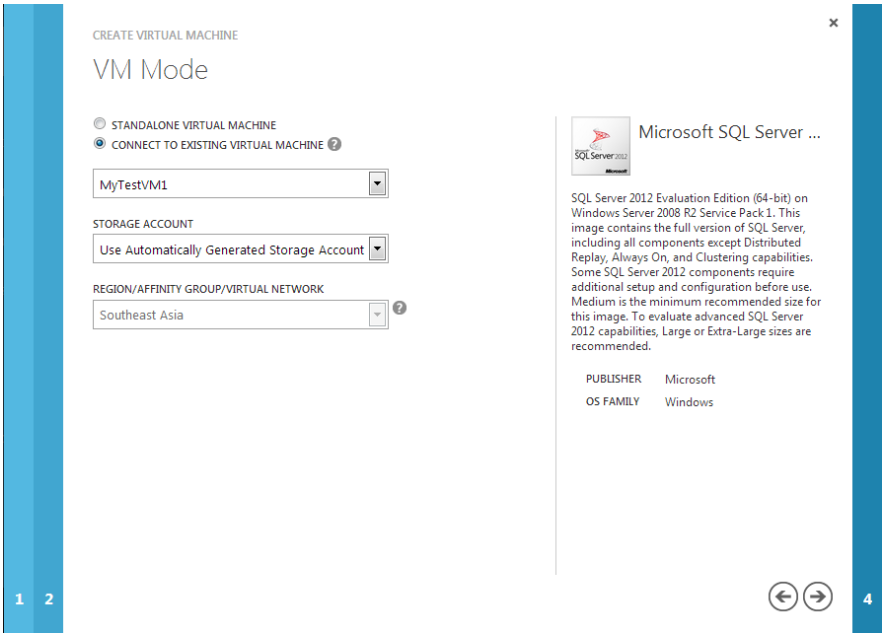
Connecting to VM:



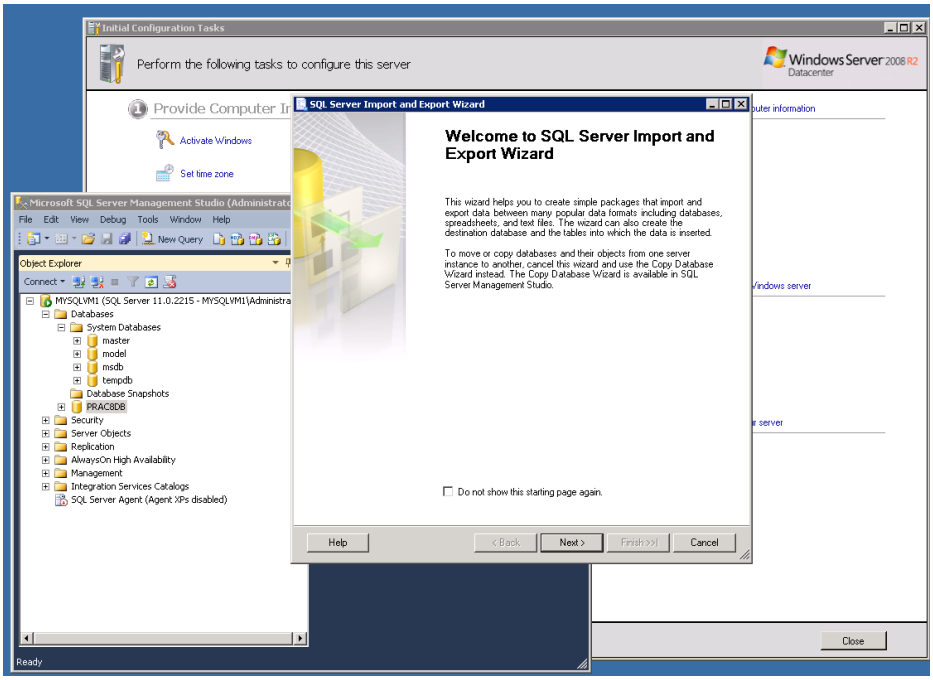
Cloud Windows VM:



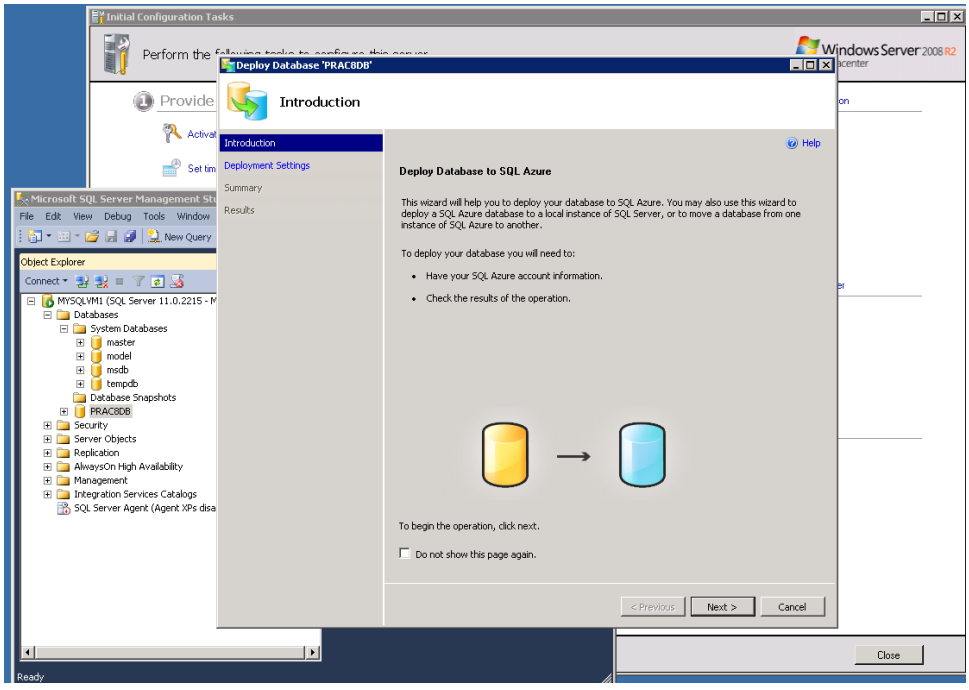
Connecting to existing VM:



Importing data into SQL VM Database:



Deploying Database into Windows Azure Cloud:



Marking:

1. Creating a new standalone Windows Virtual Machines (1 mark)
2. Creating an availability set for your Virtual Machine(0.5 mark)
3. Creating SQL Server Virtual Machine using your Windows VMs cloud service (0.5 mark)
4. Importing Car Rental schema into SQL VM (0.5 Mark)
5. Migrating Schema from SQL VM into SQL Azure (0.5 Mark)
6. Setting up Network traffic through load balancing (0.5 mark)

MSDN References:

https://www.windowsazure.com/en-us/manage/windows/how-to-guides/connect-to-a-cloud-service/

https://www.windowsazure.com/en-us/manage/windows/common-tasks/how-to-load-balance-virtual-machines/

Task 2: Windows Azure Mobile Service on the Cloud (3 marks)

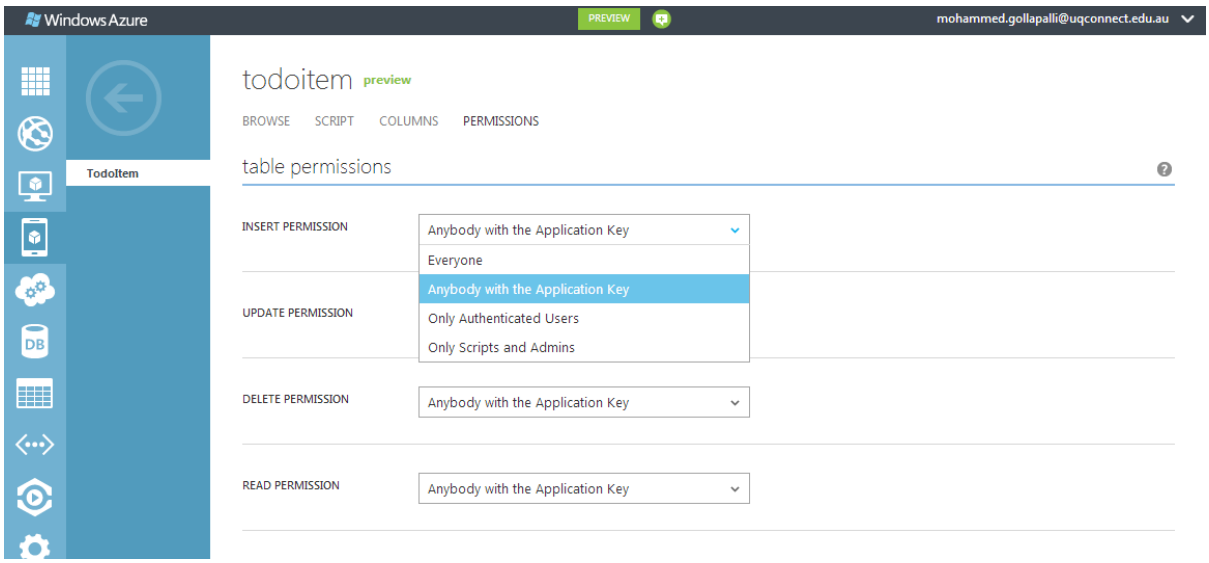
The purpose of this task is to learn how to setup Windows Azure Mobile Service on Azure Management similar to web services but aimed at windows mobile application development.

Description:

In Windows Azure Management, create a simple mobile service with backend SQL database that can be used in Task 3 (see below) by your mobile application. Also, create a simple table and grant Permissions (such as Authenticated uses/anybody with the Application Key) against each of the CRUD operations for newly created table. Furthermore, add item validations (such as text data type or length) against incoming item text using server scripts for each of the CRUD operations. The design of the table and validation depends on the kind of application you intend to build in Task 3.

Note:

If you intend to use Azure web service instead of Azure mobile service for Task 3, you still need to complete this task for marking and getting familiar with Cloud Mobile Service.



Marking:

1. Creating a Simple Mobile Service on Azure Management (0.5 mark)
2. Creating a Cloud data Table with permissions (0.5 mark)
3. Creating validation Script for each of the CRUD operations (0.5 mark each, 2 marks)

MSDN References:

https://www.windowsazure.com/en-us/develop/mobile/

https://www.windowsazure.com/en-us/develop/mobile/tutorials/validate-modify-and-augment-data-dotnet/

http://msdn.microsoft.com/en-us/library/windowsazure/jj554228.aspx

https://www.windowsazure.com/en-us/develop/mobile/tutorials/get-started/

https://www.windowsazure.com/en-us/develop/mobile/tutorials/get-started-with-data-dotnet/

Task 3: Windows Phone application using Cloud Services (3.5 marks)

The purpose of this task is to learn how to build windows phone application and performing communication on windows azure mobile service/windows azure web service deployed on the cloud.

Description:

Create a new windows store application performing CRUD operations through communicating with Windows Azure Mobile Service you created in Task 2. For you can create and download basic Windows Store application within the Azure Management (see below screenshot). If you have any difficulty with the available SDK packages in the computer labs, you can consider creating and communicating with Windows Azure Web Service (similar to task 1 of Prac 7) instead of Windows Azure Mobile Service. You are free to create any mobile application of your choice such as building calendar reminders, weather forecast, text messaging, shopping basket, camera capture etc. as long as you perform mobile app's CRUD operation through Web/Mobile service with data managed in the cloud.

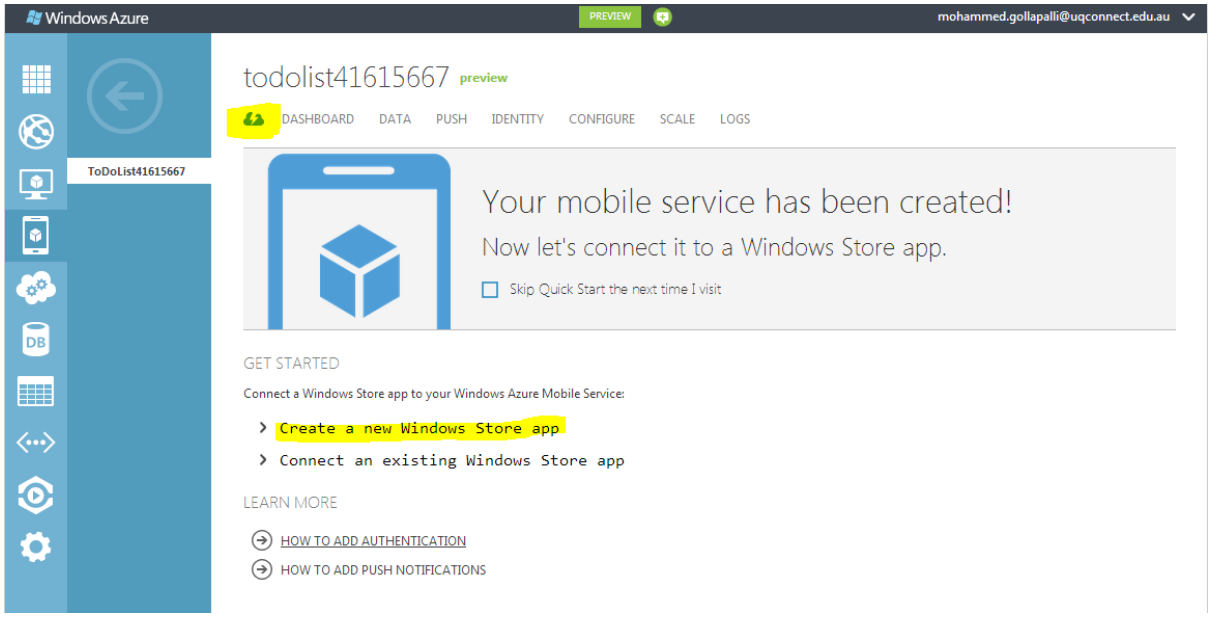
Marking:

1. Designing a simple Windows Mobile Application (1 mark)
2. Connecting to Windows Azure Mobile Service\Web Service onto Cloud (0.5 mark)
3. Performing CRUD operations through communication with Mobile Service \Web Service (0.5 each, 2 mark)

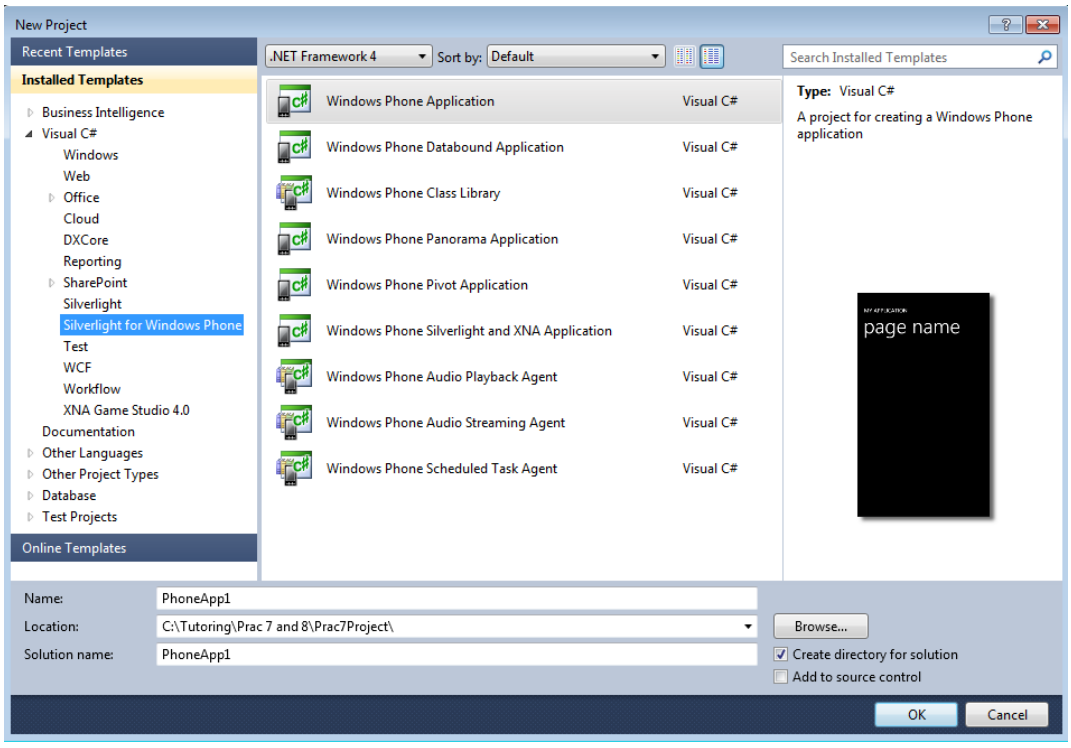
MSDN Links:

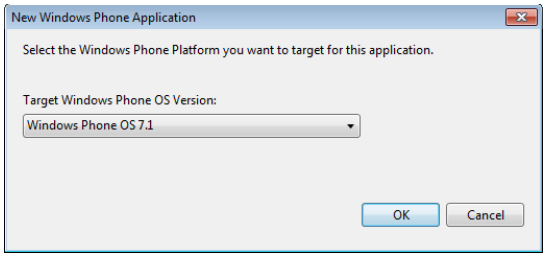
http://msdn.microsoft.com/en-us/library/windowsphone/develop/ff402526(v=vs.92).aspx

Creating a Windows Store application within the Azure Management:



Creating a new Windows Phone application in Visual Studio:





Visual Studio 2010 Silverlight Windows Phone App Development: