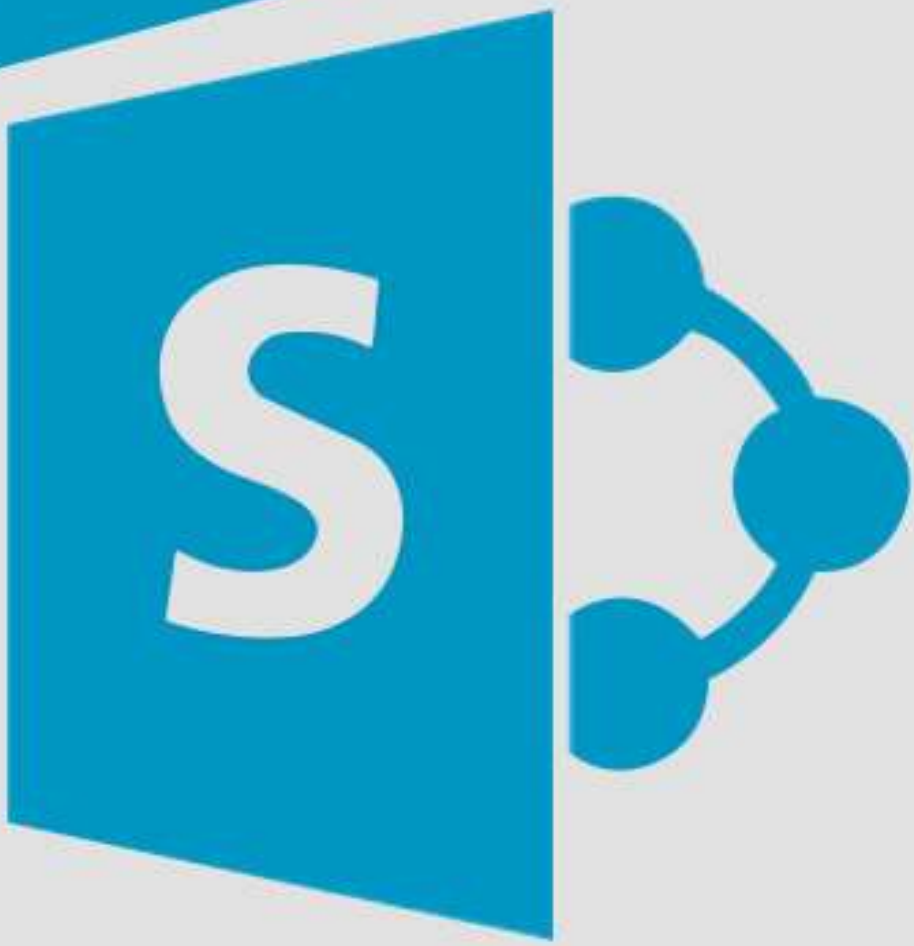

SharePoint

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About the Tutorial

This tutorial will give you an idea of how to get started with SharePoint development. Microsoft SharePoint is a browser-based collaboration, document management platform and content management system. After completing this tutorial, you will have a better understating of what SharePoint is and what are the high-level feature areas and functionalities of SharePoint.

Audience

This tutorial has been prepared for anyone has an urge to develop websites and Apps. After completing this tutorial you will find yourself at a moderate level of expertise in developing websites and Apps using SharePoint.

Prerequisites

Before you start proceeding with this tutorial, we are assuming that you are already aware about the basics of Web development.

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1. SharePoint – Overview

This tutorial will give you an idea of how to get started with SharePoint development. Microsoft SharePoint is a browser-based collaboration, document management platform and content management system. After completing this tutorial, you will have a better understating of what SharePoint is and what are the high-level feature areas and functionalities of SharePoint.

What is SharePoint

SharePoint is a platform to support collaboration and content management system. It is a central web-based portal. Using SharePoint, you can manage your colleague's and your own documents, social activities, data, and information.

- It allows groups to set up a centralized, password-protected space for document sharing.
- Documents can be stored, downloaded and edited, then uploaded for continued sharing.
- SharePoint offers such a wide array of features that it is very challenging for any one person to be an expert across all the workloads.

Let us understand what all can we do with SharePoint. It is divided into three separate areas-

Collaboration

The term collaboration contains a very strong theme for SharePoint. It means bringing people together through different types of collaboration, such as enterprise content management, Web content management, social computing, discoverability of people and their skills.

- In SharePoint 2013, collaboration is managed through Apps.
- Developers can extend, customize, or build their own Apps for SharePoint as well manage collaboration on SharePoint.

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Interoperability

SharePoint is also about bringing this collaboration together through interoperability such as-

- Office and web-based document integration.
- Capability to build and deploy secure and custom solutions that integrate line-of-business data with SharePoint and Office.
- Integrating with wider web technologies, or deploying applications to the cloud.

Platform

SharePoint is also a platform that supports not only interoperability and collaboration but also extensibility, through a rich object model, a solid set of developer tools, and a growing developer community.

- One of the key paradigm shifts is the notion of the cloud in SharePoint.
- The cloud introduces new App models such as-
    - New ways of developing, deploying, and hosting SharePoint applications.
    - New forms of authentication through OAuth.
    - New ways of data interoperability using OData and REST.

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2. SharePoint – Types

In this chapter, we will be covering the different types and versions to start working on SharePoint.

There are three main ways to install and use SharePoint-

- SharePoint Foundation
- SharePoint Server
- Office 365

The first two options are SharePoint on-premise, while Office 365 has emerged as a third, fully cloud-hosted model for SharePoint.

SharePoint Foundation

SharePoint Foundation is the essential solution for organizations that need a secure, manageable, web-based collaboration platform. SharePoint Foundation provides you with the basic collaboration features that are included within SharePoint.

- SharePoint Foundation ships as a free, downloadable install and represents the foundational parts of SharePoint.

- It includes a number of features such as security and administration, user and Team site collaboration, and a number of Apps (such as document libraries and lists).

- In essence, it provides a baseline set of features that enable you to get started with both using and developing for SharePoint.

SharePoint Foundation requires some features to build standard collaboration and communication solutions within your organization. The primary features of SharePoint Foundation revolve around document management and collaboration.

Key Features of SharePoint Foundation

Following are some of the major features, which are responsible for its wide adoption in businesses.

- **Effective document and task collaboration:** Team websites offer access to information in a central location.

- **Reduced implementation and deployment resources:** SharePoint Foundation is available to Windows Server customers as a free download, with the help of which implementation time and cost are greatly reduced.

- **Better control of your organization's important business data:** SharePoint Foundation also offers features for data and information management and security.

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- **Embrace the web for collaboration:** By extending and customizing SharePoint Foundation

In short, SharePoint Foundation represents the core content storage and collaboration features of SharePoint. It is the ideal edition for teams and small organizations looking to improve on their ability to work with one another in a secure, easy-to-use, collaborative workspace.

SharePoint Server

SharePoint Server offers a wealth of features that extend upon those offered in SharePoint Foundation. It provide a richer, more advanced collection of features that you can utilize in your organization's solutions.

Key Features of SharePoint Server

Some of these additional features are described in the following list-

- **Advanced Search:** The search features and functionality features available within the Server versions offer more flexibility. They allow customized Search Results pages that you can configure with customized search Web Parts.

- **Web Content Management:** SharePoint Server supports web content creation and publishing for the internet.

- **Enterprise Services:** These services provide ways for you to build custom solutions quickly and easily using tools that are available to you within the Office product family.

- **Business Connectivity Services**: Business Connectivity Services (BCS) enables you to connect to these external data sources and display business data via Web Parts, user profiles, or SharePoint lists.

- **Social Networking and Computing:** Social networking is everywhere and has become an expected feature set of many solutions.

- **Records management:** SharePoint Server provides excellent support for the management of content throughout its entire life cycle.

Office 365

Office 365 has emerged as a third, fully cloud-hosted model for SharePoint. It is the alternate option to hosting your own farm in your own on-premises Data Center.

Key Features of Office 365

- The options for licensing SharePoint Online through Office 365 are based on factors such as the number of users you want to add, the amount of data you need to store, and the features you need to be available.

- It has also become a great place where you can develop rich applications (both as SharePoint-hosted and cloud-hosted apps) and scale without the cost of managing the on-premises infrastructure.

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- It does not have all the same services and features as SharePoint Server, but does carry with it some great development capabilities.

- There are .NET applications that you build using C# or Visual Basic and then deploy into SharePoint as .WSPs or .APPs. There are lighter-weight apps such as HTML5 and JavaScript apps that you can also deploy.

- As a developer, you have the capability to customize any of the SharePoint editions, whether it is SharePoint Foundation, Server, or Office 365.

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3. SharePoint – Capabilities

In this chapter, we will be covering the default set of capabilities (or features) built into SharePoint that enables you to take advantage of the platform without doing any development.

- You can use or extend these core capabilities when building your Apps. Microsoft has historically referred to these capabilities as workloads.

- These workloads provide a way to talk about the different capabilities of SharePoint coming together. You should see these workloads as representing not only a core set of related applications but also as opportunities for your application development.

Following are the workloads, which were added in SharePoint 2010-

- **Sites:** Representing the different types of sites available for use and the features within these sites.

- **Communities:** Representing the community and social features such as blogs and wikis.

- **Content:** Representing core enterprise content management features.

- **Search:** Representing the search-driven features.

- **Insights:** Representing business intelligence features such as KPIs.

- **Composites:** Representing the ability to integrate external applications by using, for example, Business Connectivity Services.

SharePoint 2013 – Capabilities

In SharePoint 2013, Microsoft has extended the capabilities to add more features and provide tighter integration.

Following are the core capabilities for SharePoint 2013-

Capability	Native Features	Example Extensibility
Sites	Sites is where you will find the collaborative aspects of SharePoint. Sites contain an abundance of features, including the capability to create, store, and retrieve data, and manage, tag, and search for content, documents, and information. You also have connectivity into the Microsoft Office 2013 client applications through the list and document library.	Sites, site templates, Apps for SharePoint, workflow, master pages, site pages

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Social	Provides social and social networking capabilities, newsfeeds, and profile searching and tagging, along with the capability to search, locate, and interact with people through their skills, organizational location, relationships, and rating of content.	Search customization, rating and tagging capabilities, blogs, wikis, metadata tags
Content	Contains the capability to explore, search, and manage content using Web pages, apps, workflow, or content types.	Apps for SharePoint, workflows, Word or Excel Services
Search	The ability to search content inside and outside of SharePoint in a rich and dynamic way with real-time document views through Office Web Apps. In addition, the integration of information in structured database systems and on-premises or cloud-based LOB systems such as SAP, Siebel, and Microsoft Dynamics.	SharePoint Search, Search customization, Business Data Connectivity (BDC)
Insights	Predominantly about BI and support, for example, the capability to integrate Microsoft Access into SharePoint; leverage Excel and SQL Server to access and display data on a Web page; enable the use of dashboards and key performance indicators (KPIs) to transform raw data into actionable information.	Excel Services, Access Services, dashboards, BDC, PerformancePoint Services
Interoperability	Ranges from LOB integration to Office integration, through the new Apps for Office application model; (think HTML and JavaScript-fueled custom task panes that link to cloud services instead of VSTO managed code add-ins) to custom solution development.	BDC, Apps for Office, custom development
Branding	Changing the look and feel of your site through built-in template changes or more detailed and organizationally driven branding.	Out of the box configuration, master pages and customized Apps for SharePoint

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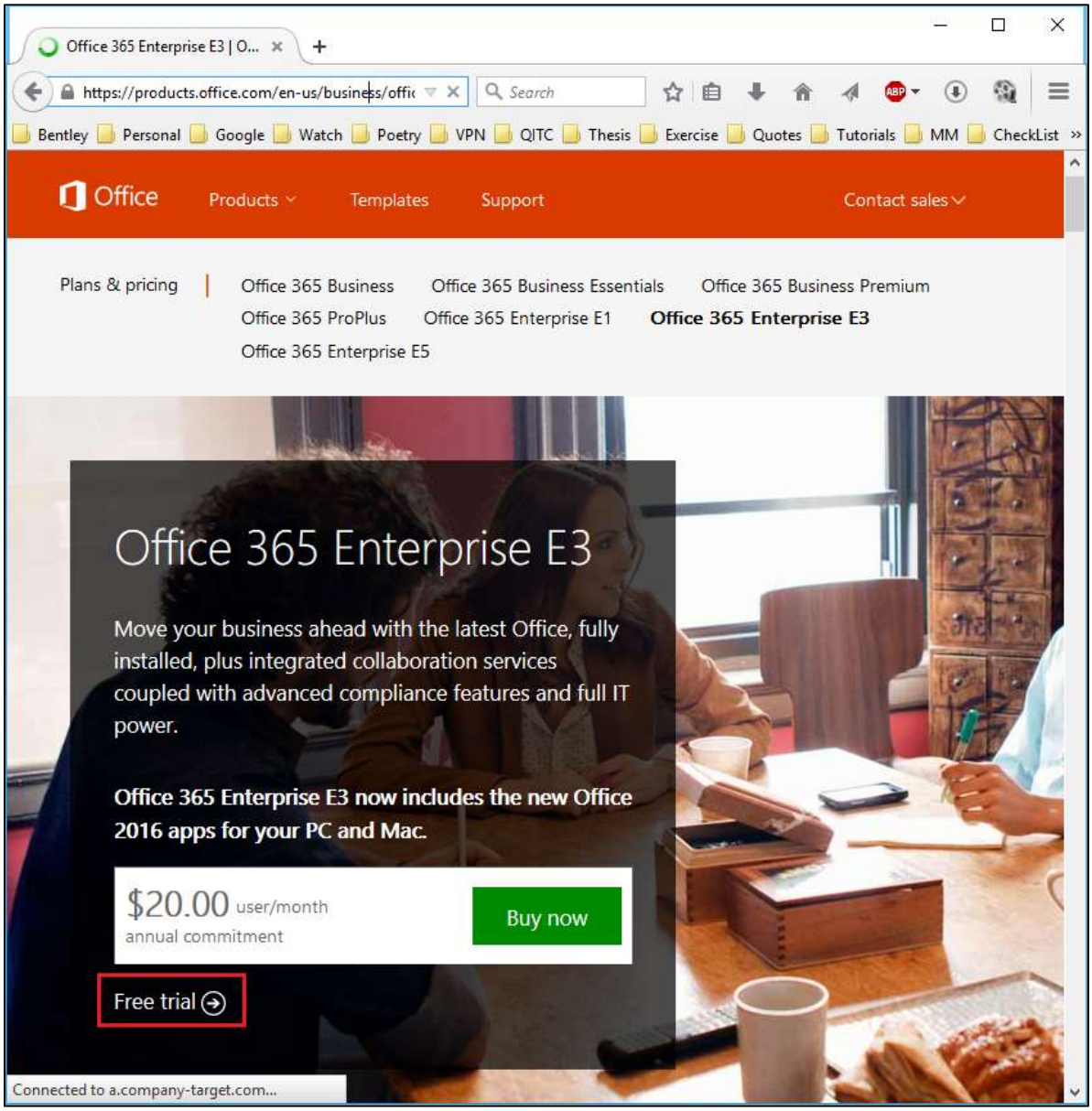
4. SharePoint – Setup Environment

In this chapter, we will setup the development environment for SharePoint. As you already know that there are three different options of SharePoint. They are-

- SharePoint Foundation
- SharePoint Server
- Office 365

In this chapter, we will be using the Office 365, which is cloud-based version.

Step 1. You can easily create a free trial account here https://products.office.com/en/business/office-365-enterprise-e3-business-software



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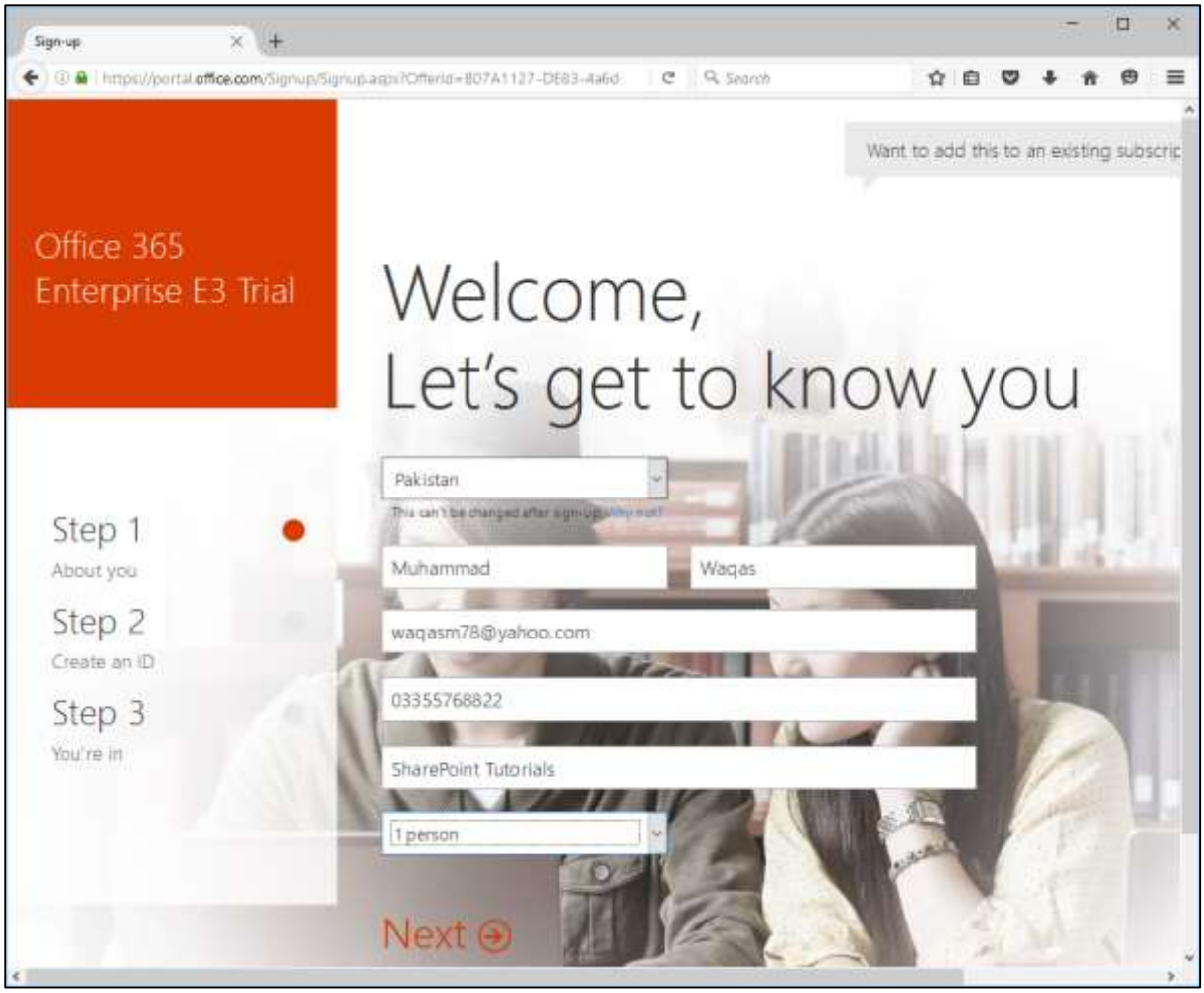
Step 2. Click the Free trial option. A new page will open.



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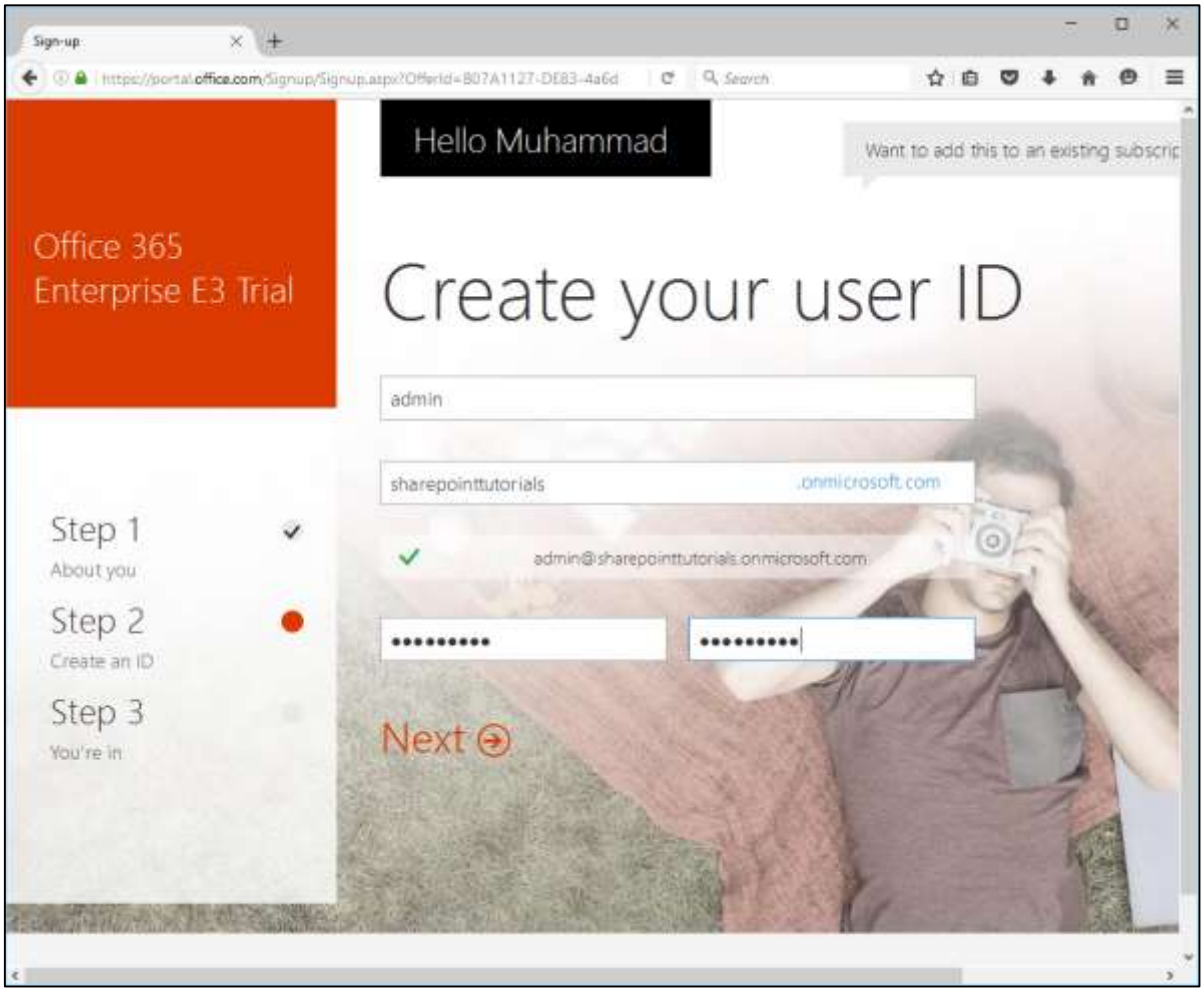
Step 3. Enter the required information and click **Next** and you will see the following page.



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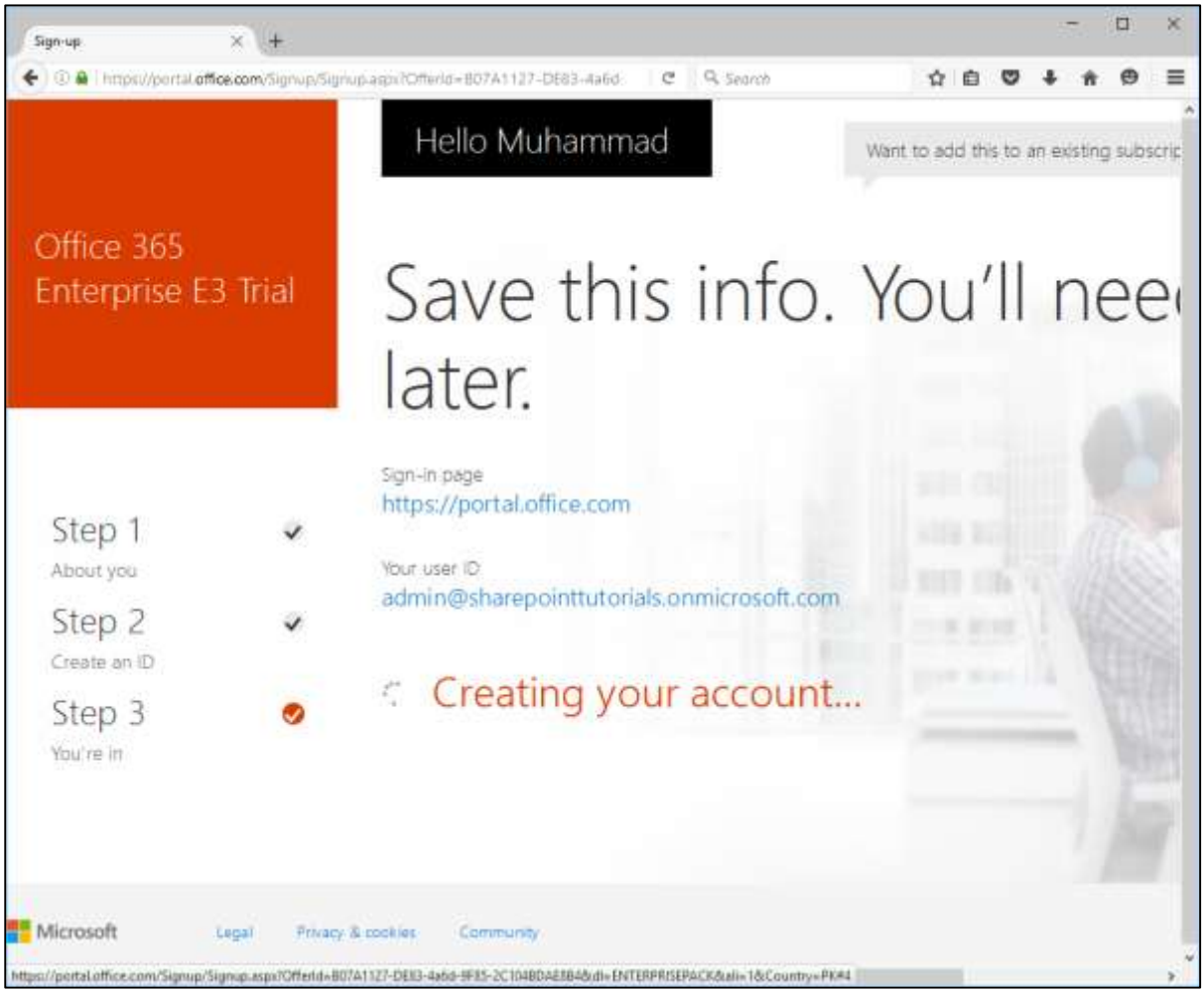
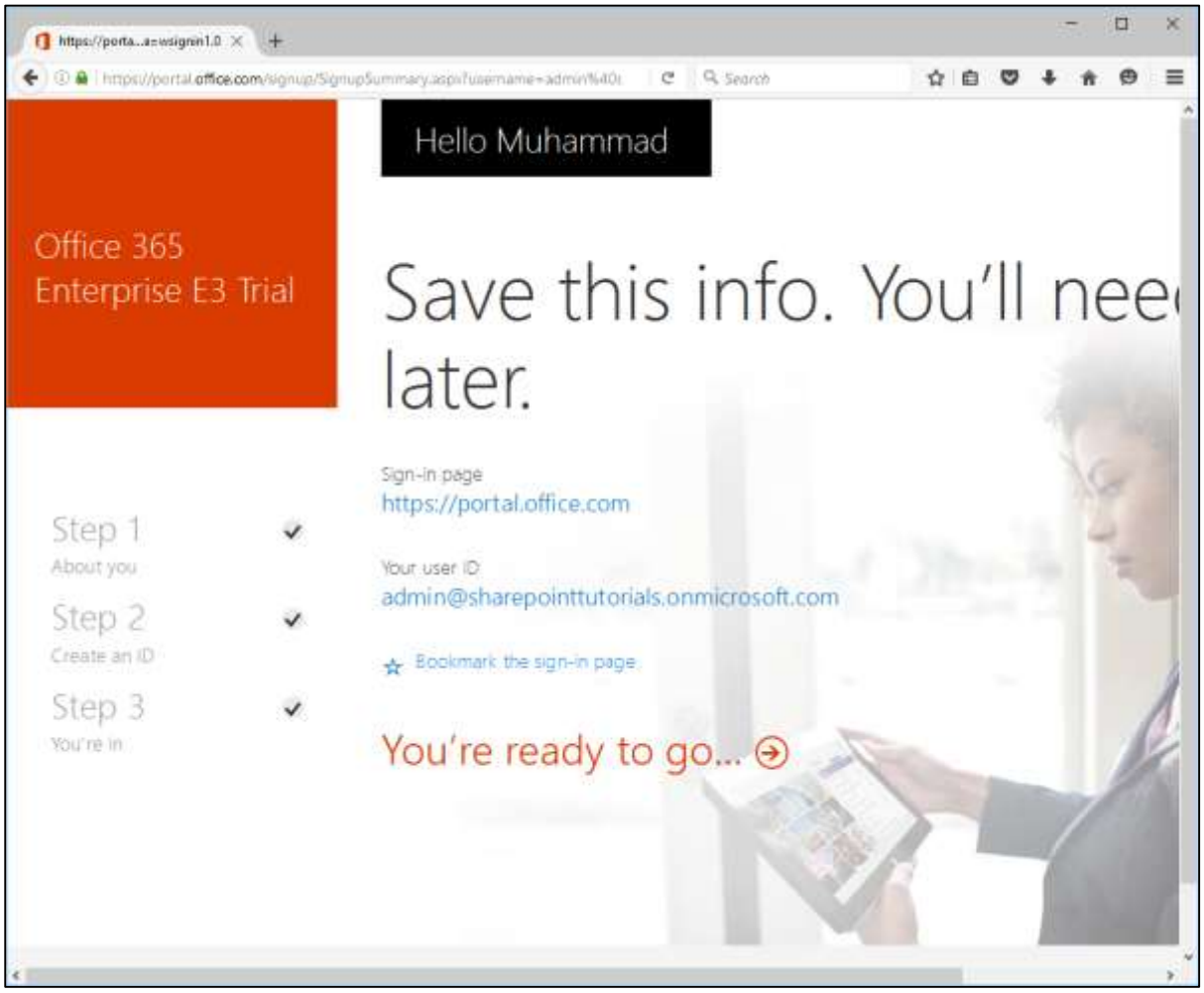
Step 4. Enter the username, company name and password and click **Next**. It will send you a verification code. Once the verification is completed then it will start creating the account.



Step 5. Once your account is created, you will see the following page.



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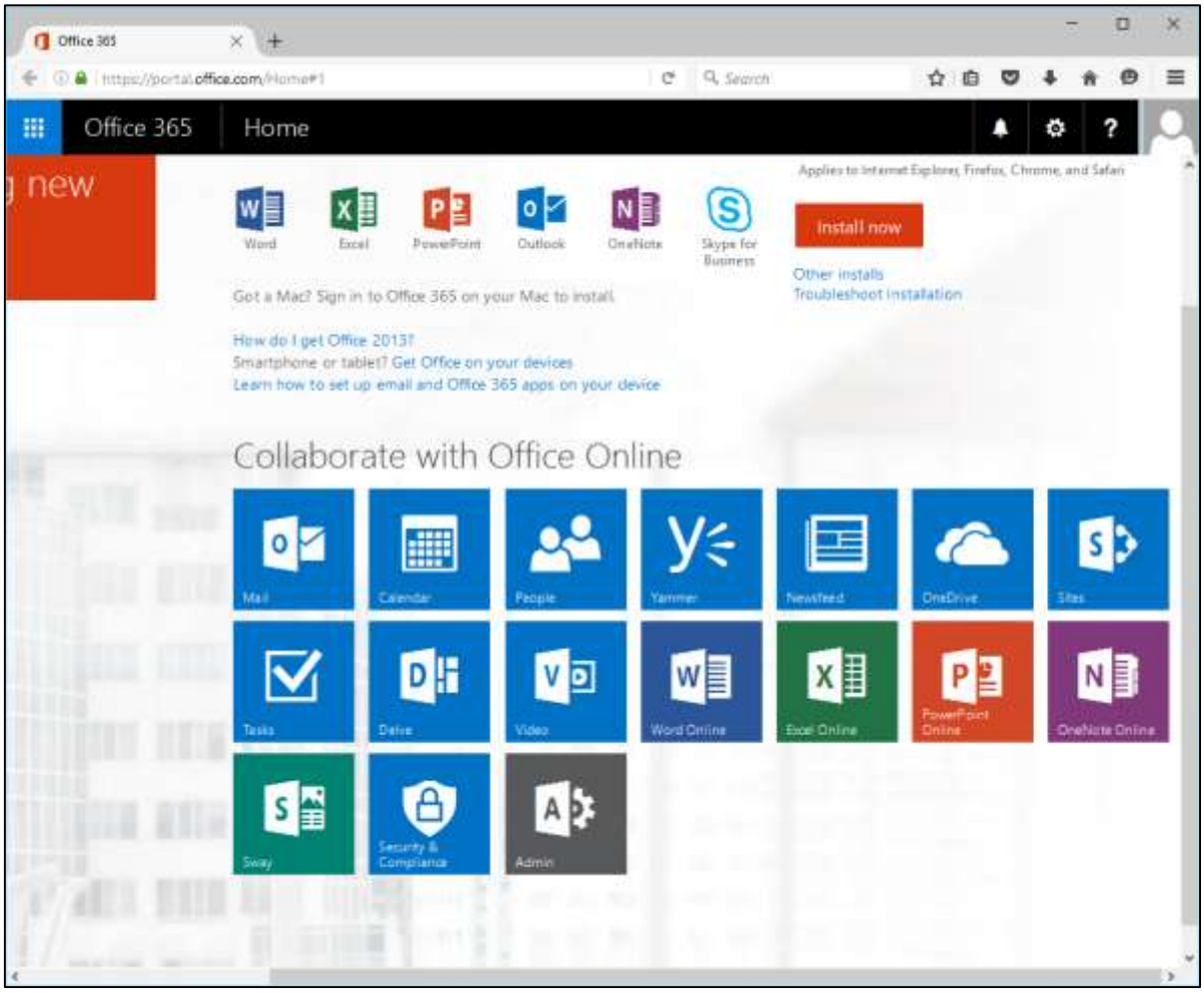
Step 6. Click **You're ready to go** and you will see the following page-



Now your environment is ready and you can start share point development but you will also need to install visual studio.

Microsoft provides a free version of visual studio, which also contains SQL Server and it can be downloaded from https://www.visualstudio.com/en-us/downloads/download-visual-studio-vs.aspx.

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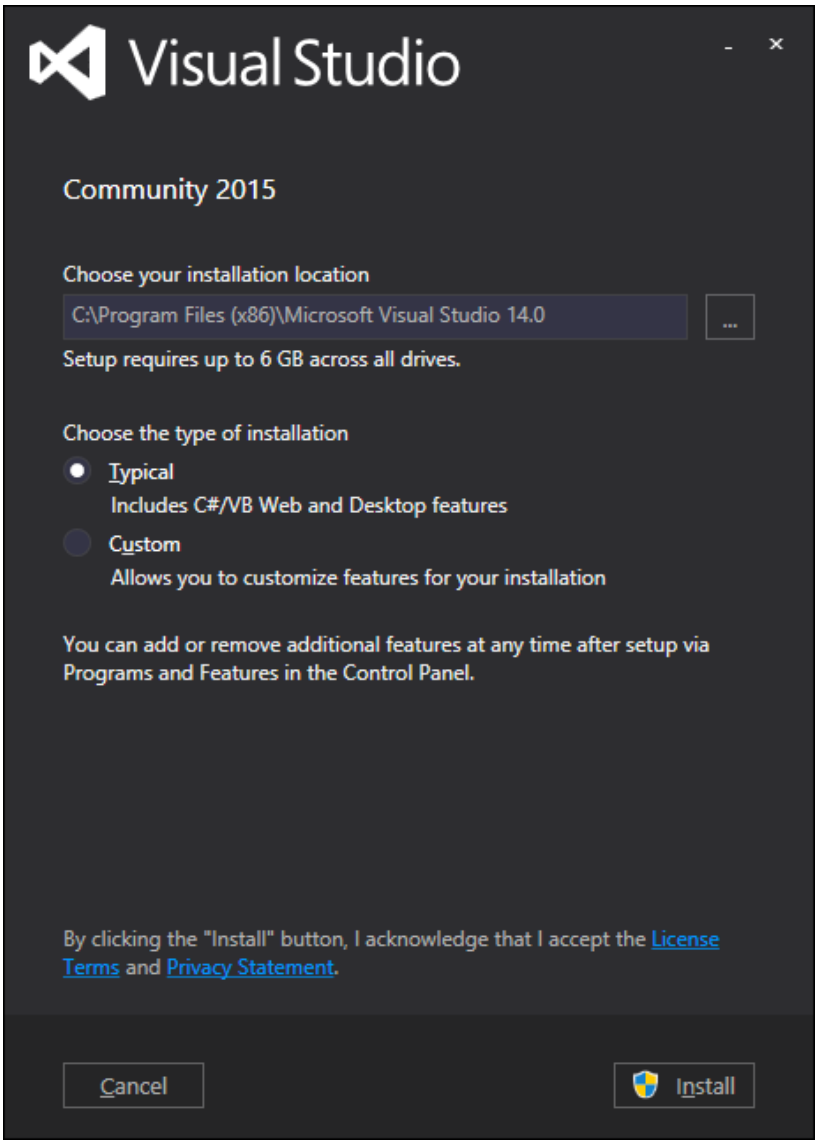
Installation

Following steps will guide you to install SharePoint.

Step 1. Once downloading is complete, run the installer. The following dialog will be displayed.



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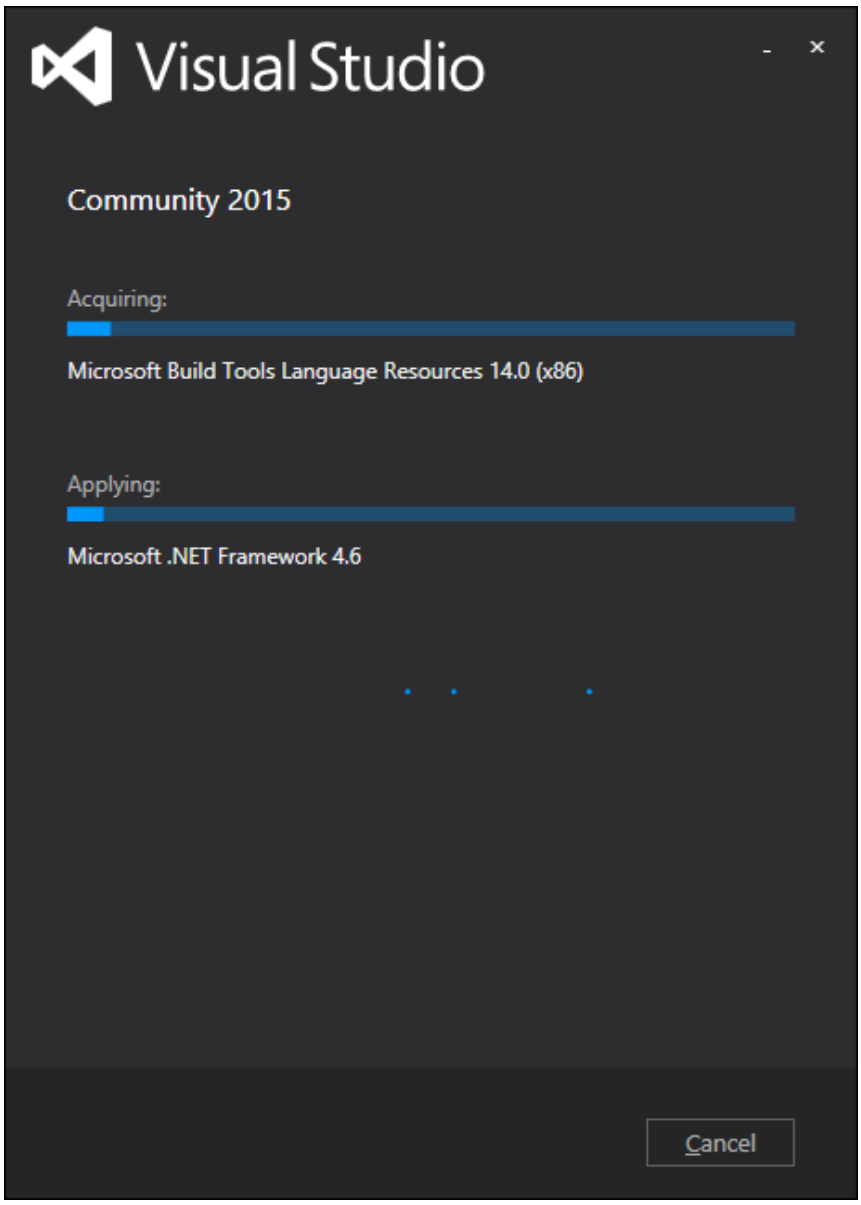
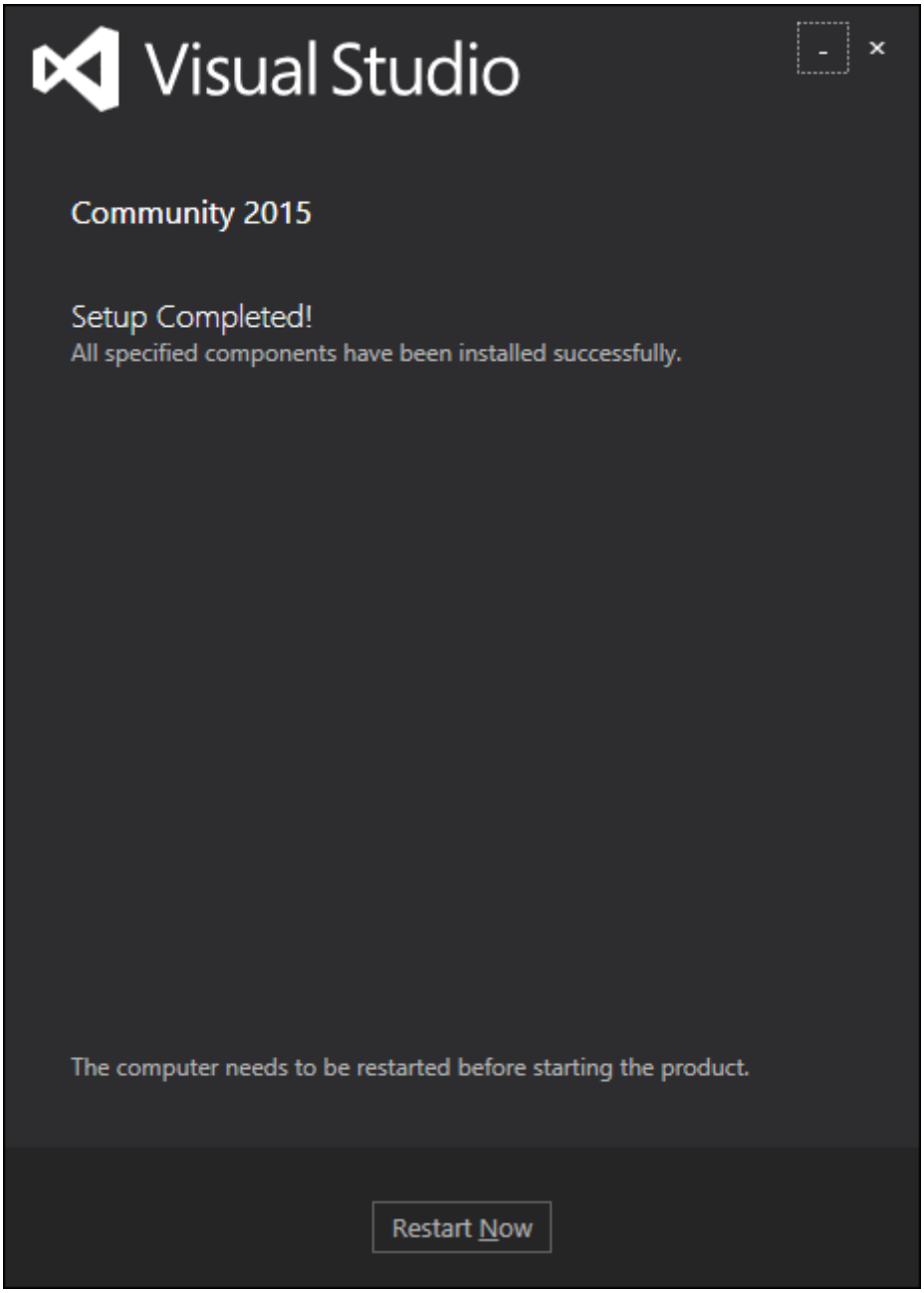
Step 2. Click Install and it will start the installation process.



Step 3. Once the installation process is completed successfully, you will see the following message-



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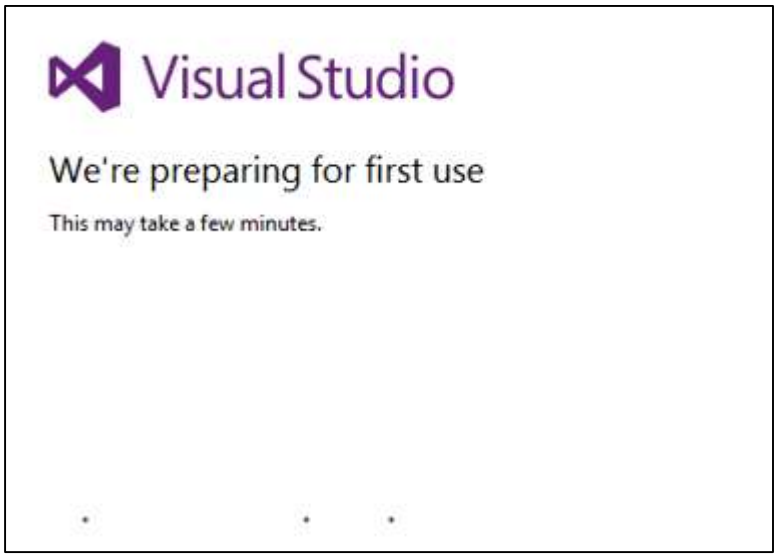
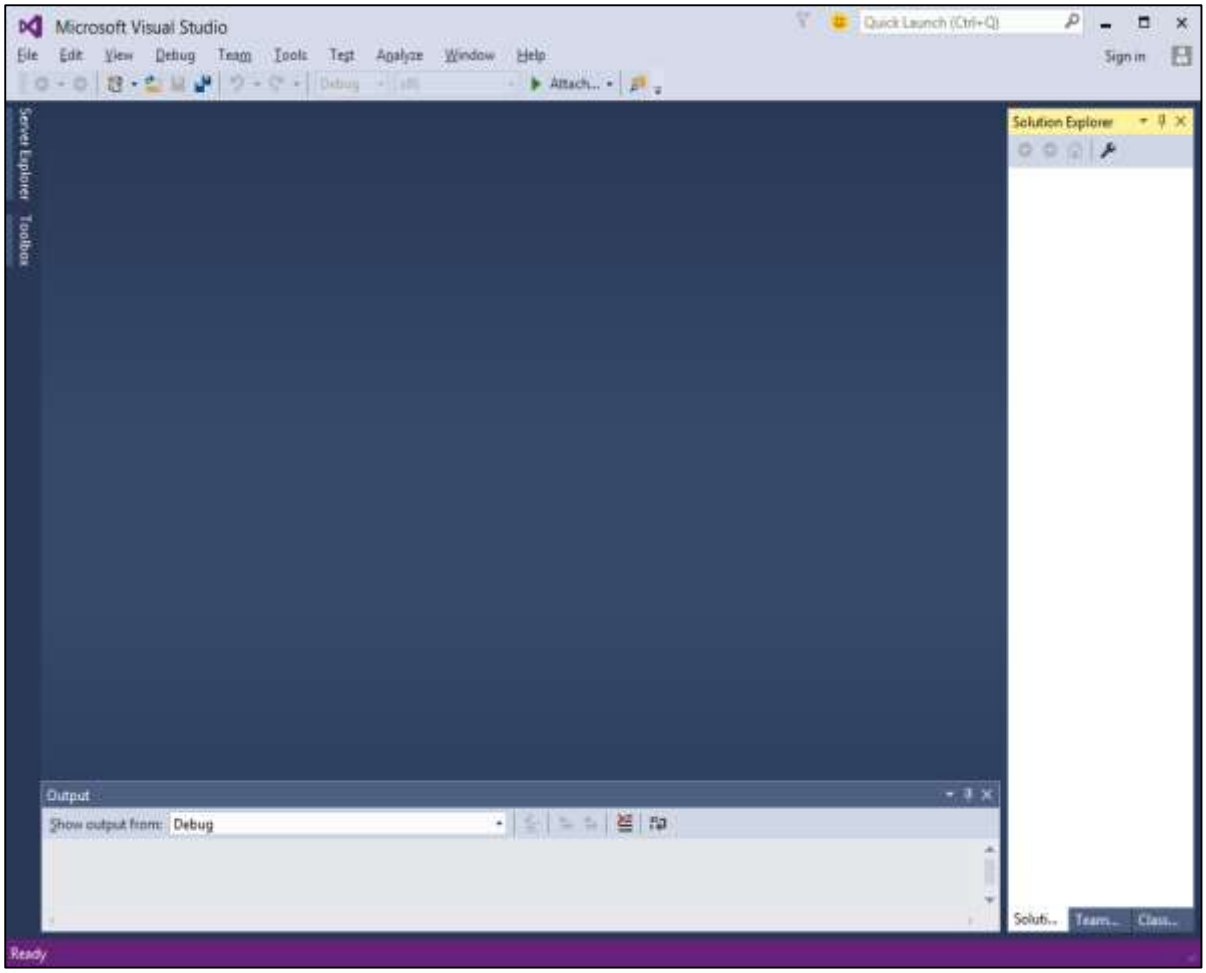
Step 4. Restart your computer if required. Now open Visual studio from the Start Menu. It will open the following dialog box and it will take some time for preparation.



Step 5. Once all is done, you will see the main window of Visual studio.



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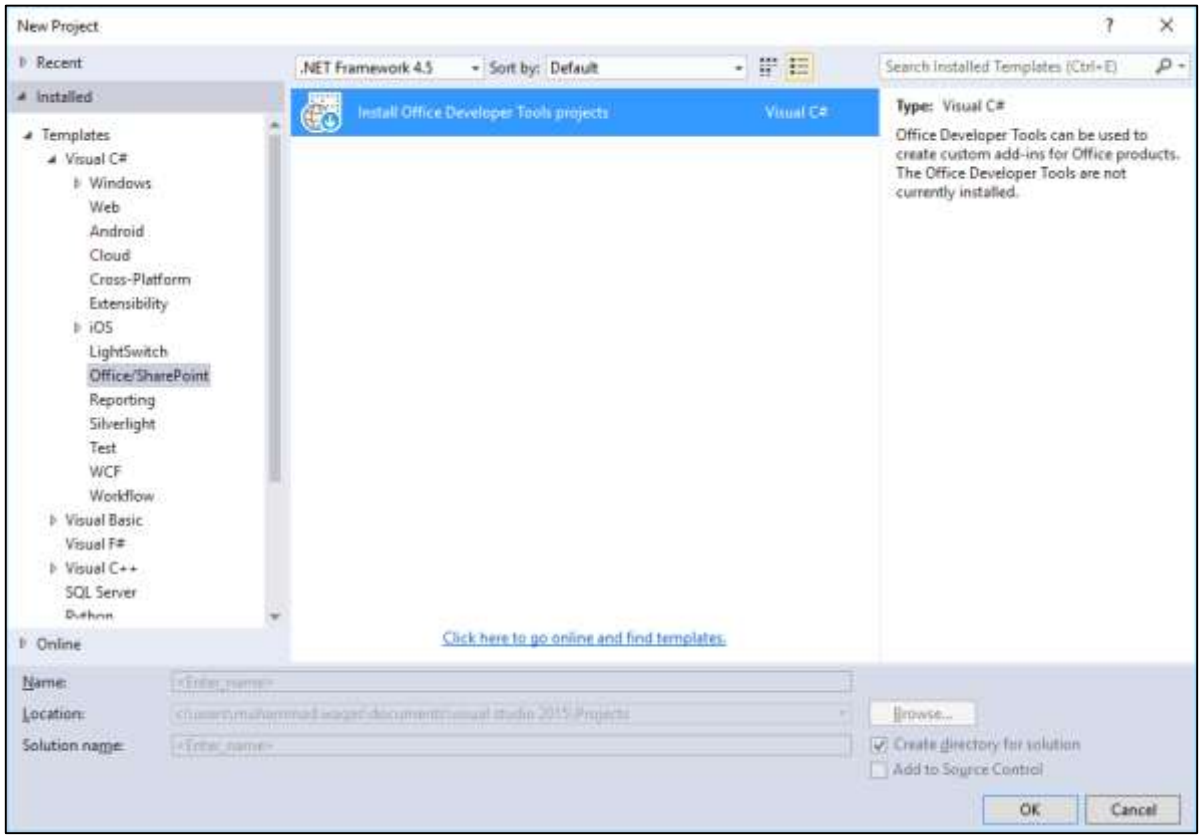
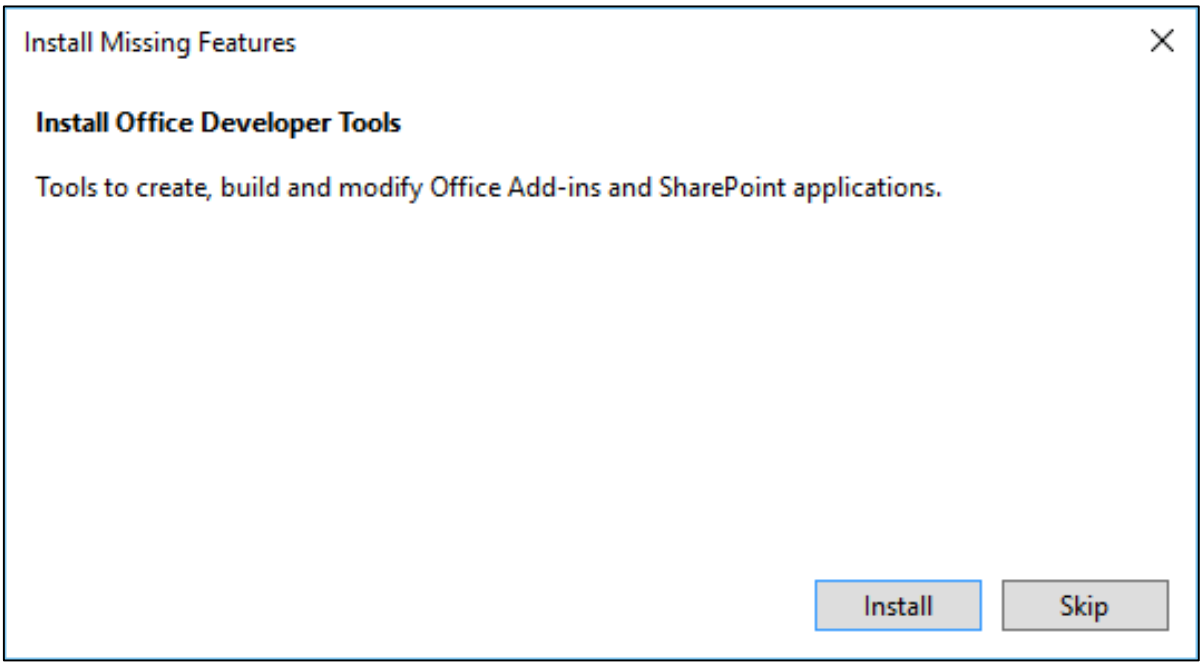
You are now ready to start your application.

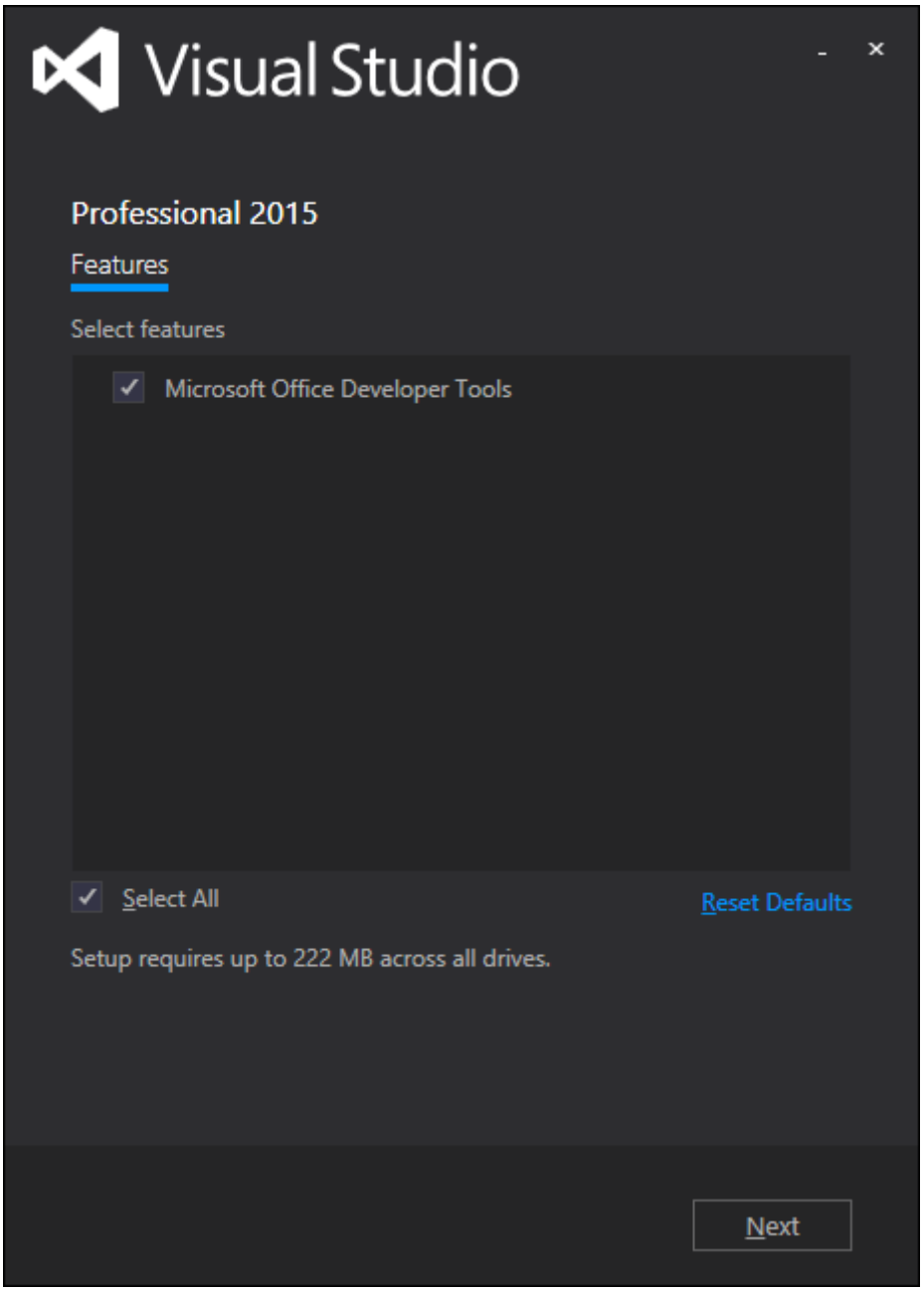
Step 6. Select **File > New > Project** menu option.



Step 7. Select Office/SharePoint in the left pane under **Templates > Visual C#.** Double-click **Install Office Developer Tools**.



Step 8. Click **Install** and close all Visual Studio instances. A new page will open. Click **Next**.



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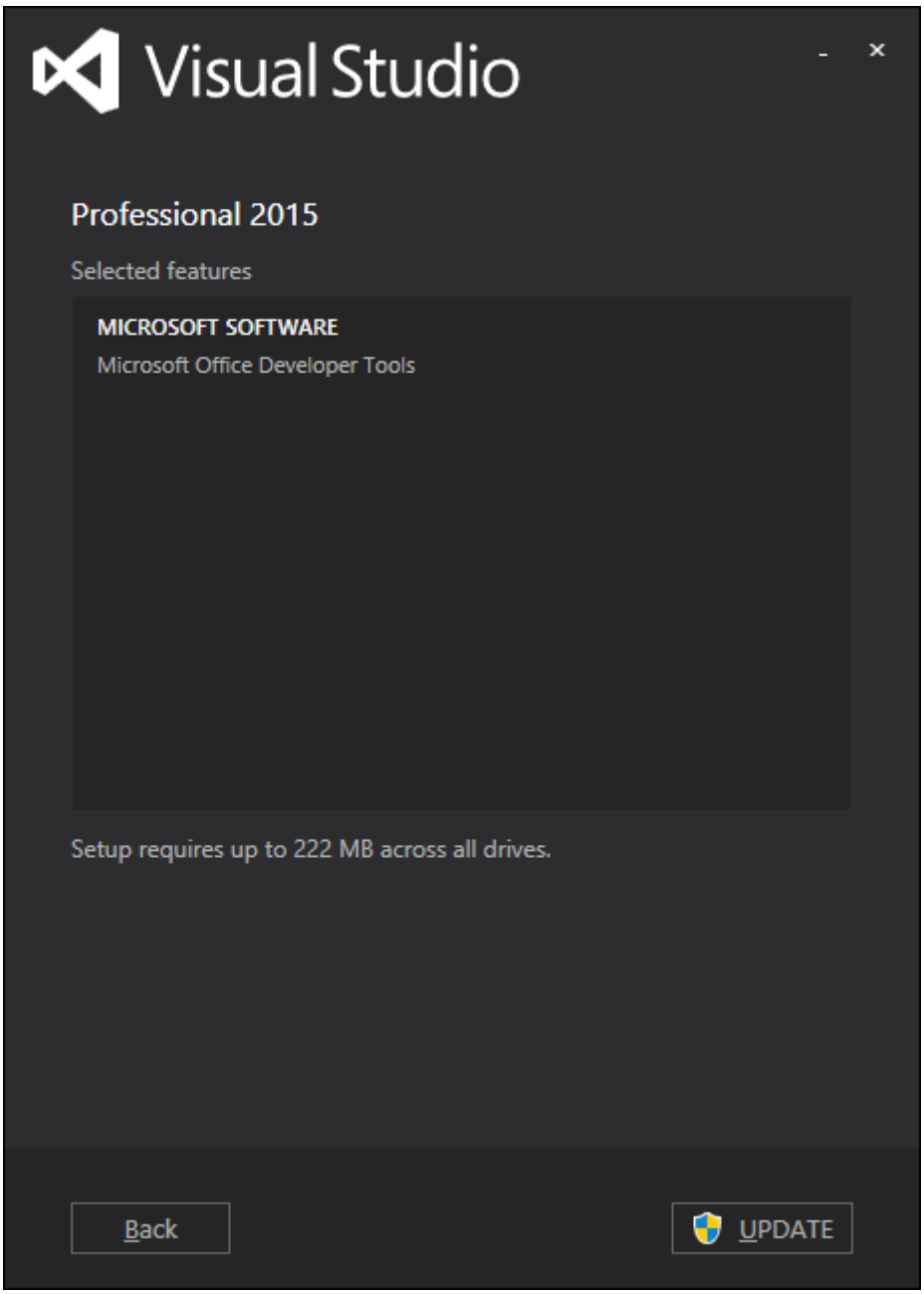
Step 9. A message box will appear. Click **Update**.



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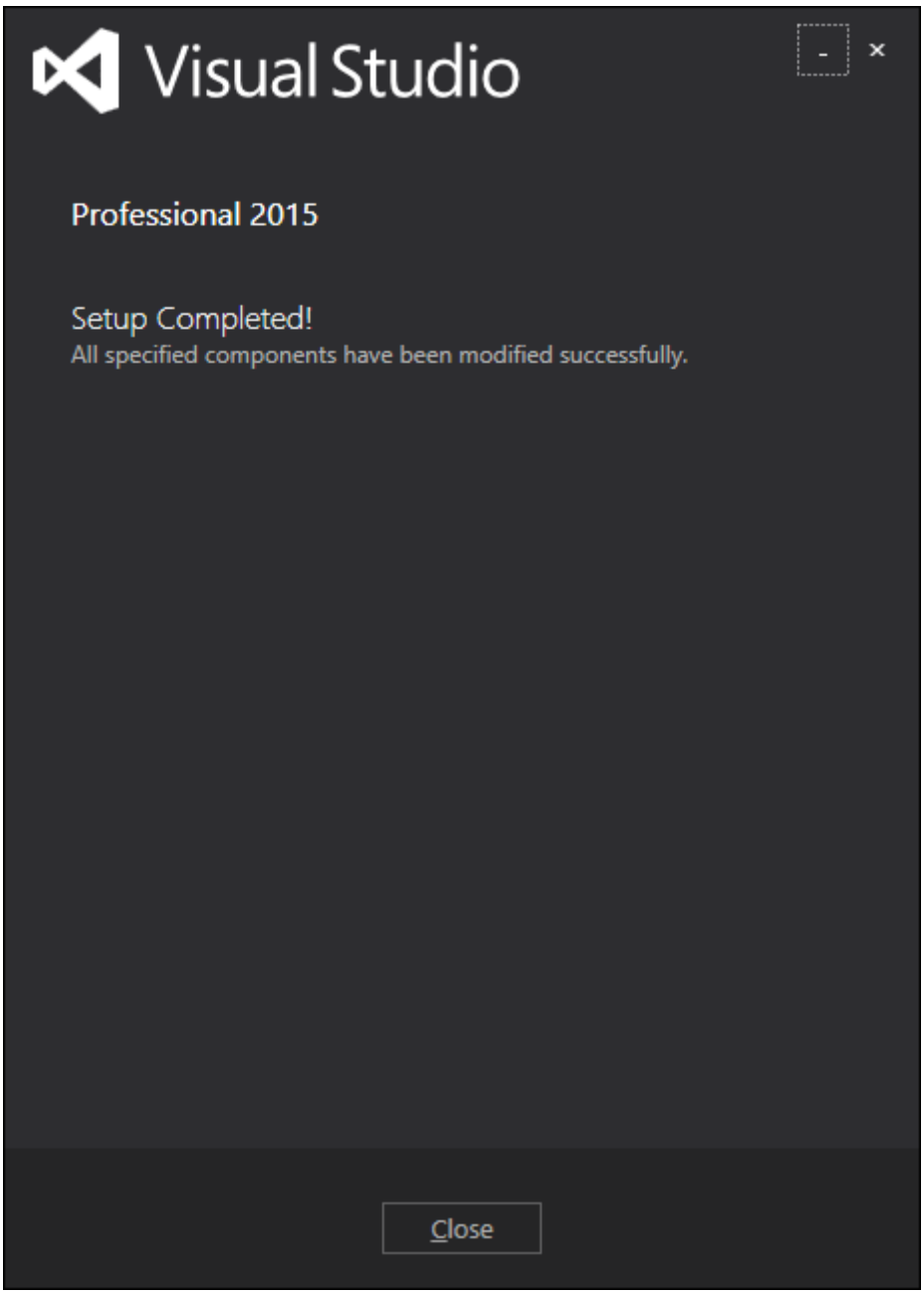
Step 10. Once it is updated, you will see the message as follows-



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5. SharePoint – Create Site Collection

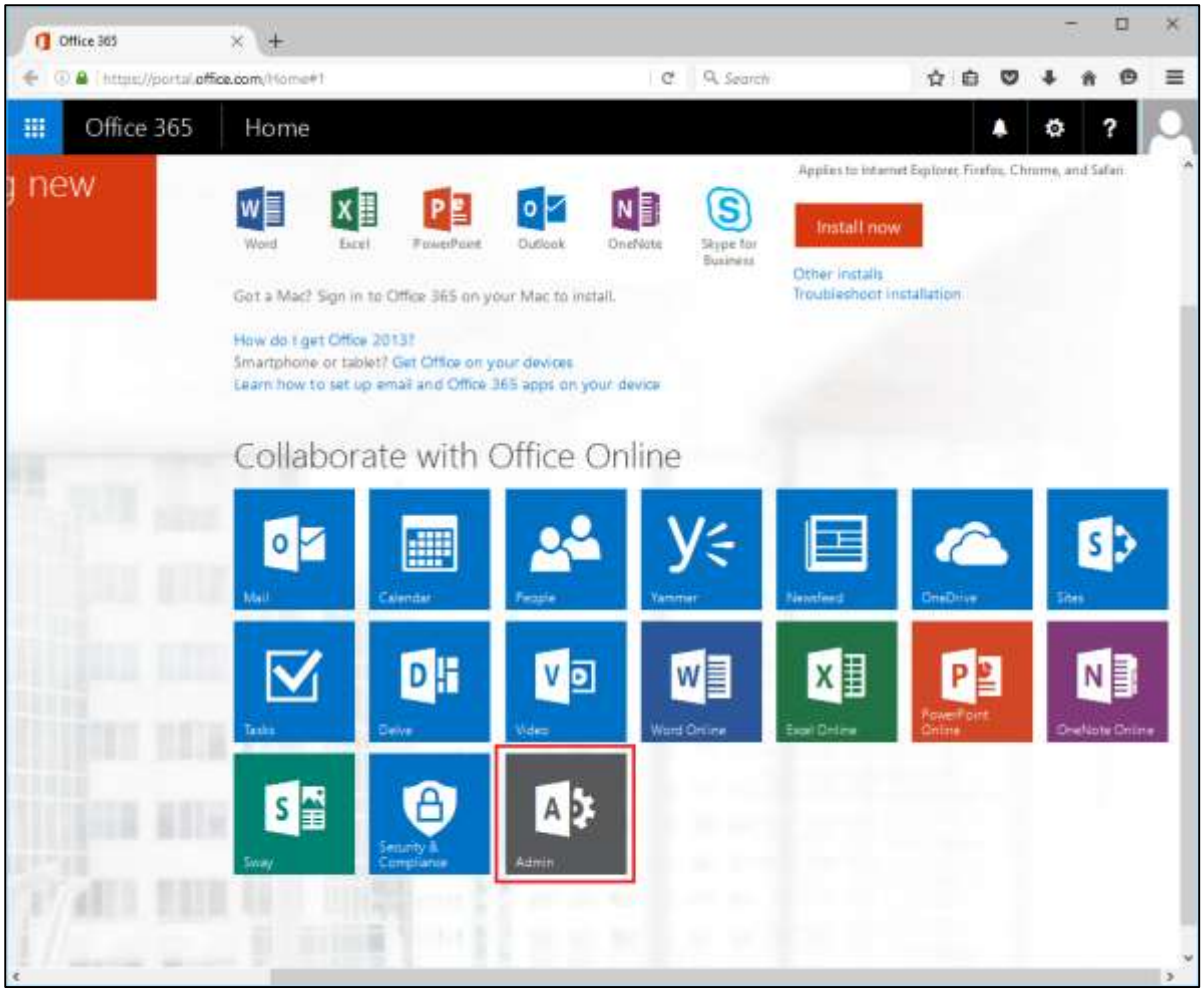
The site is the core thing to SharePoint and represents the starting point for developers, and without site collection, you cannot start SharePoint development. A Microsoft SharePoint online site collection is a top-level site that contains subsites.

A number of site templates are available which you can use. The subsites share administration settings, navigation, and permissions each of which can be changed for individual subsites as needed.

Create Site Collection

When learning an application such as SharePoint, it is a good idea to create an area where you can perform exercises without affecting the existing environments or users.

Step 1. To create a new site collection let us go to the site https://portal.office.com/



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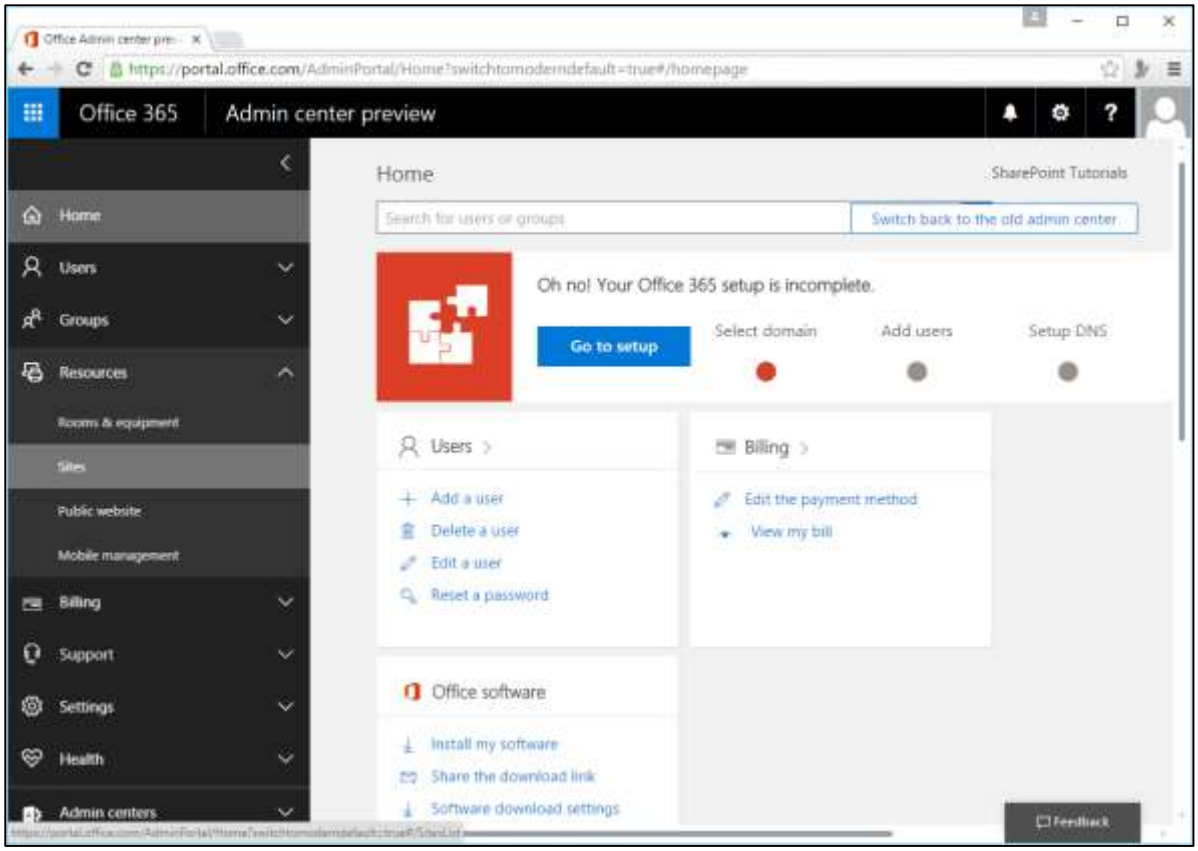
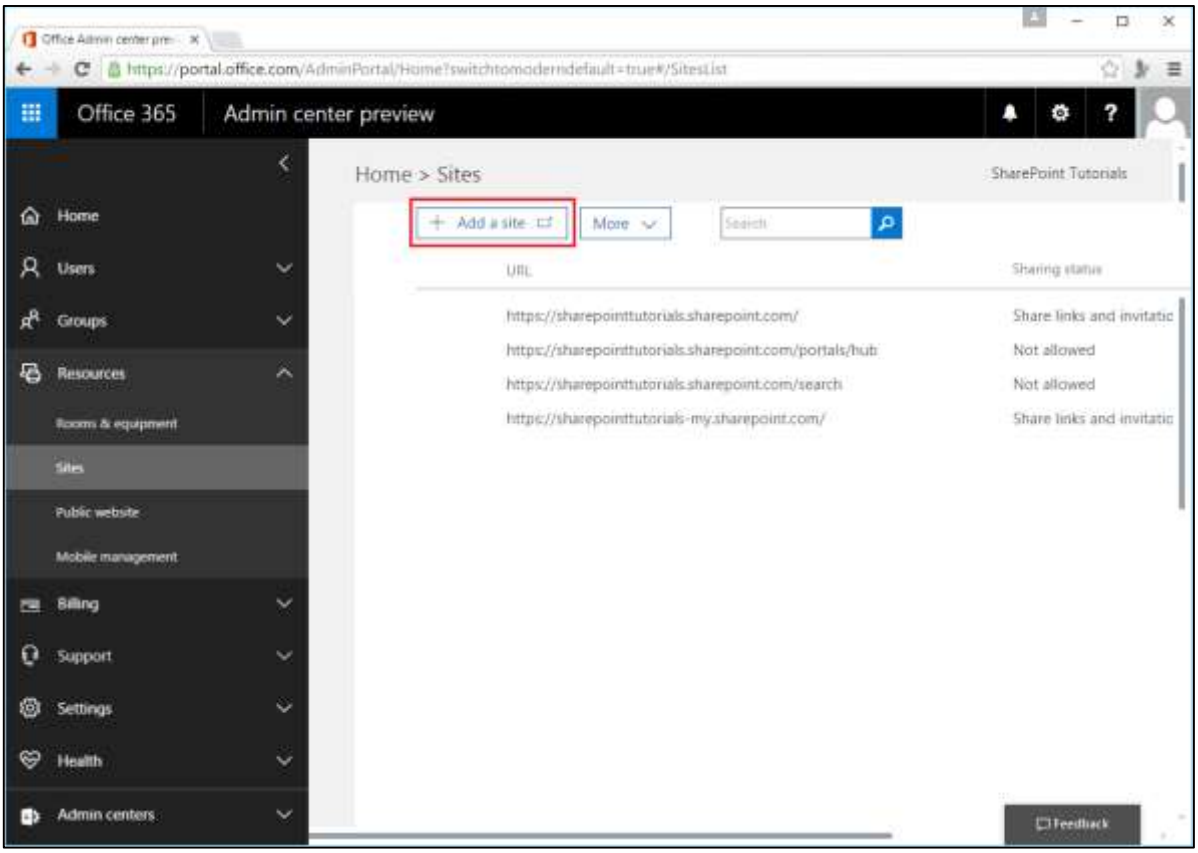
Step 2. Select Admin icon and you will see the following page-



Step 3. Select **Resources > Sites**, in the left pane. In the right pane, click **Add a site.**



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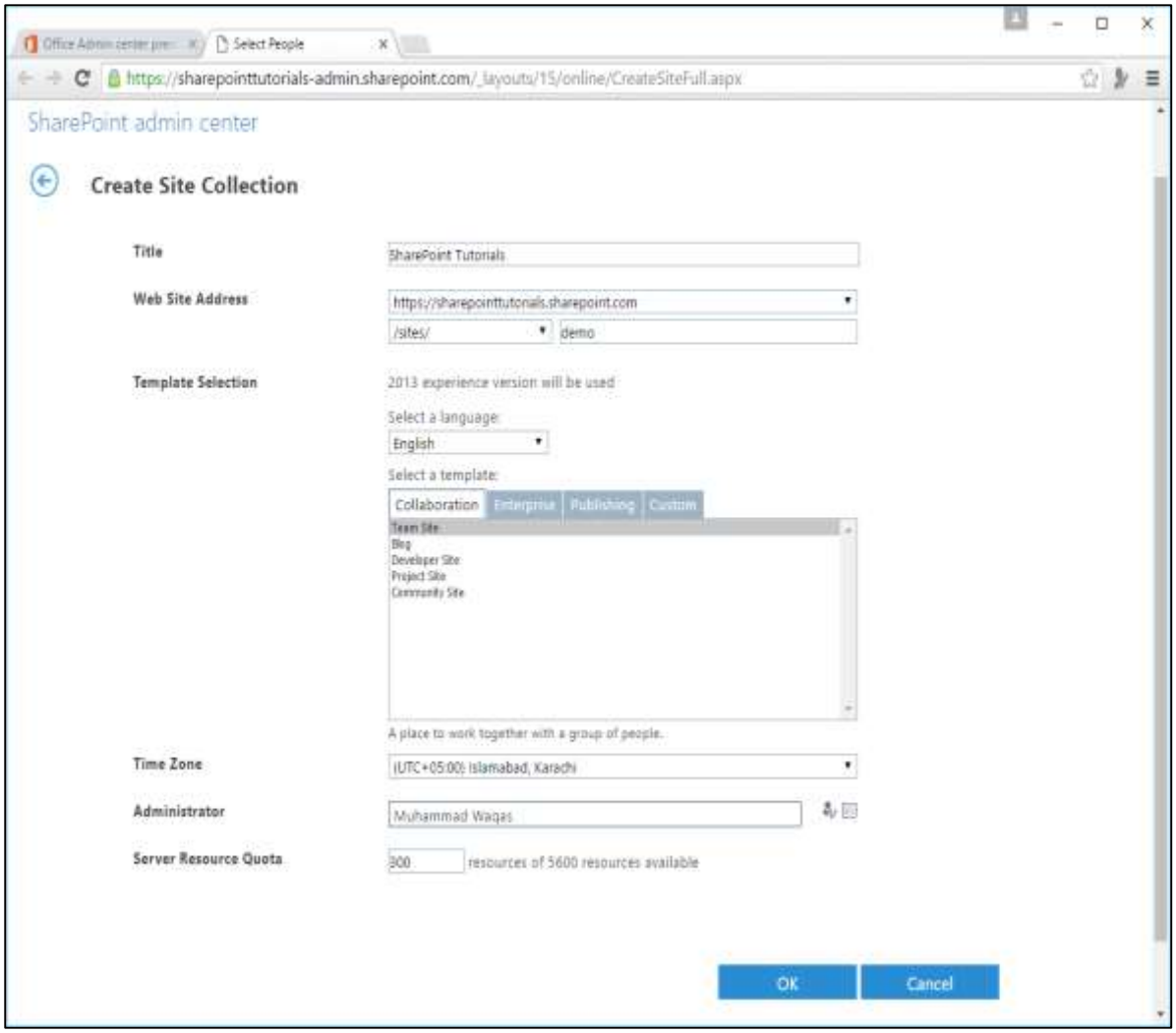
Step 4. Following page will open. Enter the required information and click OK.



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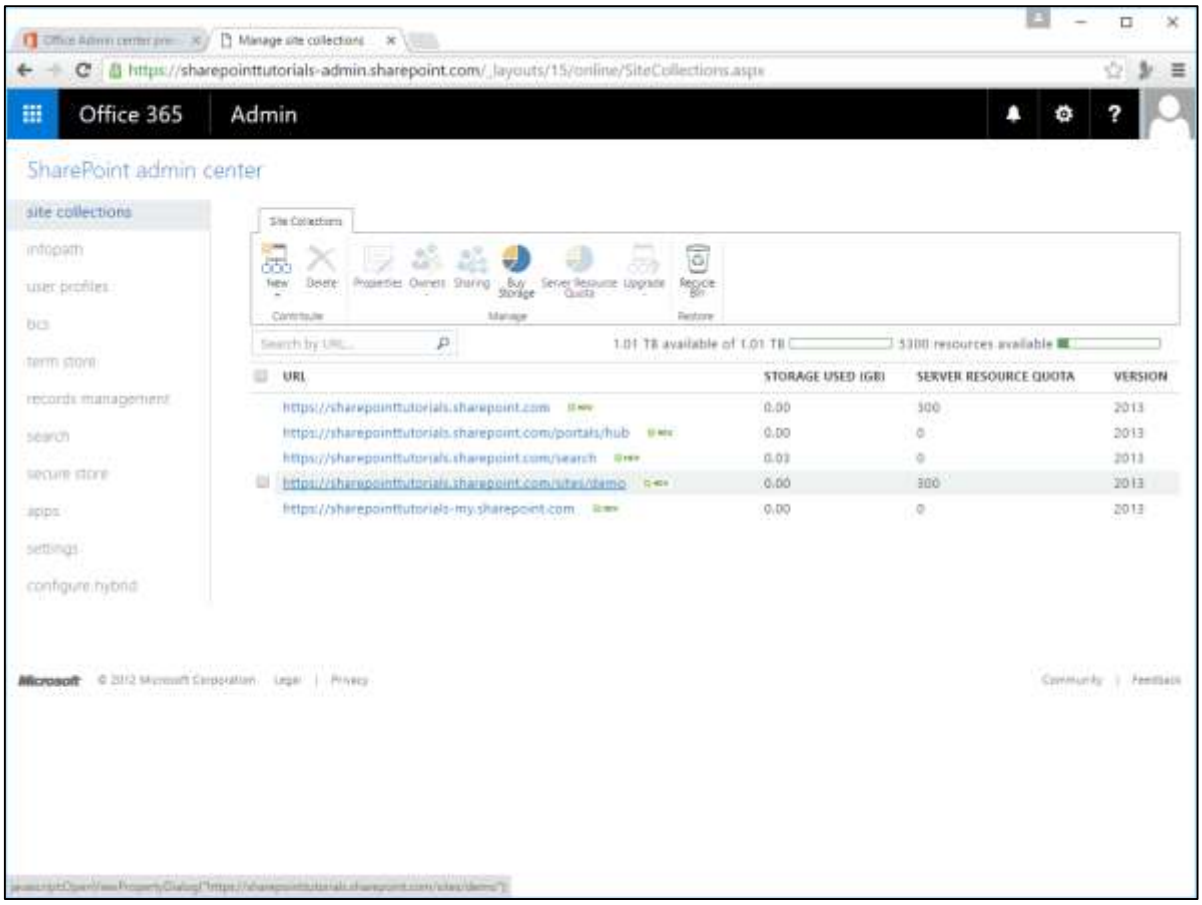
You can see that the site collection is added in your admin center URL list. The URL is the site collection location at which the administrator can start to create and manage sites.



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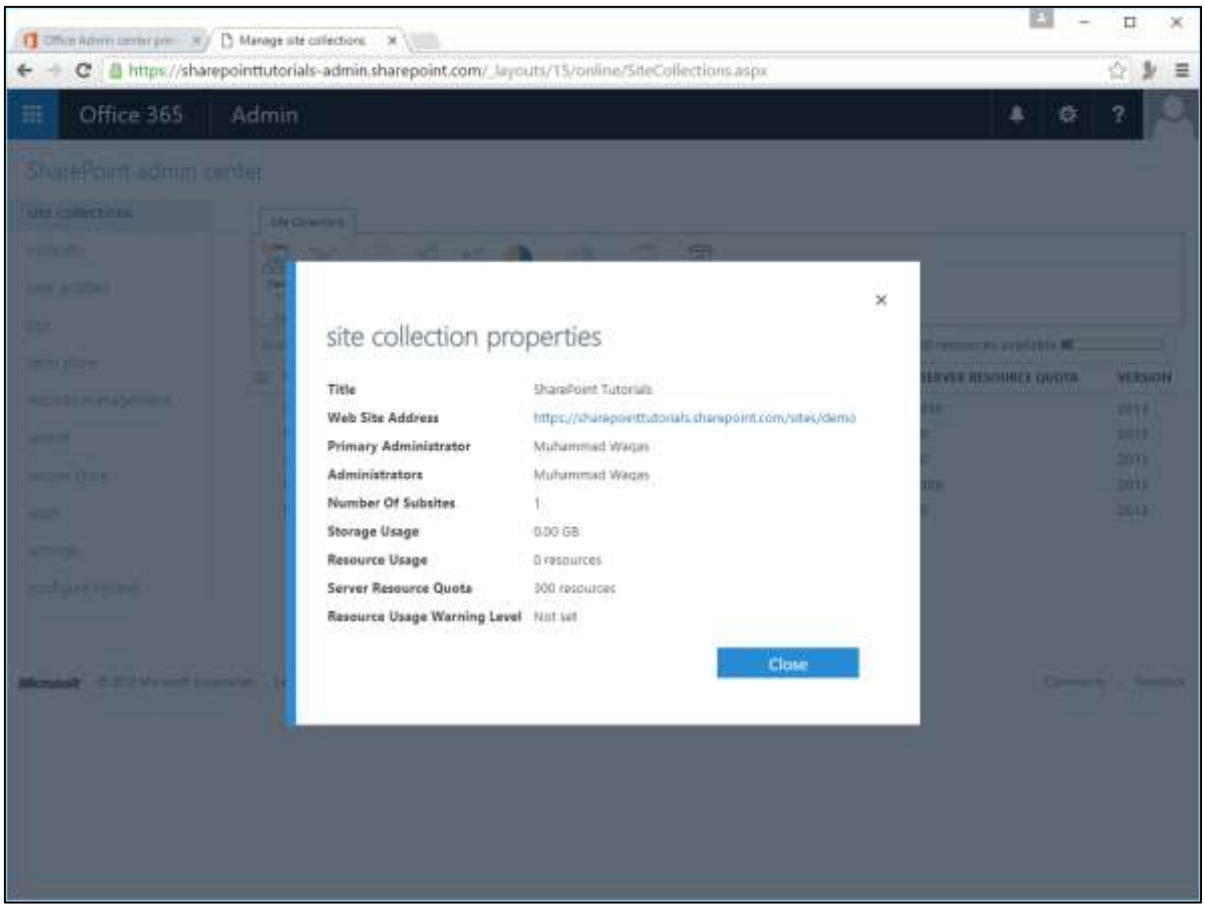
Step 5: Click the link and you will see the detailed information regarding that site collection.



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6. SharePoint – APIs

In this chapter, we will be covering the several sets of APIs to access the SharePoint platform.

The selection of APIs depend upon the following different factors-

- Application type
- Developer existing skills
- Device on which the code runs

Application Type

There are different types of applications such as-

- SharePoint Add-in
- Web Part on a SharePoint page
- Silverlight application running on either a client computer or a client mobile device
- ASP.NET application exposed in SharePoint
- JavaScript running in a SharePoint site page
- SharePoint application page
- Microsoft .NET Framework application running on a client computer
- Windows PowerShell script
- Timer job running on a SharePoint server

Developer Existing Skills

You can easily create applications in SharePoint if you already have experience in any of the following programming models without needing to learn a lot about SharePoint programming-

- JavaScript
- ASP.NET
- REST/OData
- .NET Framework
- Windows Phone
- Silverlight
- Windows PowerShell

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Device on Which the Code Runs

The device on which the code runs can be any of the following-

- Server in the SharePoint farm.
- An external server such as a server in the cloud.
- A client computer and a mobile device.

The following table provides guidance for different set of APIs, which can be used for a selected list of common SharePoint extensibility projects.

APIs	Usage
.NET Framework client object model, Silverlight client object model, REST/OData endpoints	Create an ASP.NET web application that performs CRUD operations on SharePoint data or external data that is surfaced in SharePoint by a BCS external content type, but does not have to call SharePoint across a firewall.
REST/OData endpoints	Create a LAMP web application that performs CRUD operations on SharePoint data or external data that is surfaced in SharePoint by a BCS external content type. Create an iOS or Android app that performs CRUD operations on SharePoint data.
Mobile client object model	Create a Windows Phone app that performs CRUD operations on SharePoint data.
Mobile client object model and the server object model	Create a Windows Phone app that uses the Microsoft Push Notification Service to alert the mobile device of events in SharePoint.
.NET Framework client object model	Create a .NET Framework application that performs CRUD operations on SharePoint data.
Silverlight client object model	Create a Silverlight application that performs CRUD operations on SharePoint data.

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JavaScript client object model	Create an HTML/JavaScript application that performs CRUD operations on SharePoint data. Create an Office Add-in that works with SharePoint.
Server object model	Create a custom Windows PowerShell command. Create a timer job. Create an extension of Central Administration. Create consistent branding across an entire SharePoint farm. Create a custom Web Part, application page, or ASP.NET user control.

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