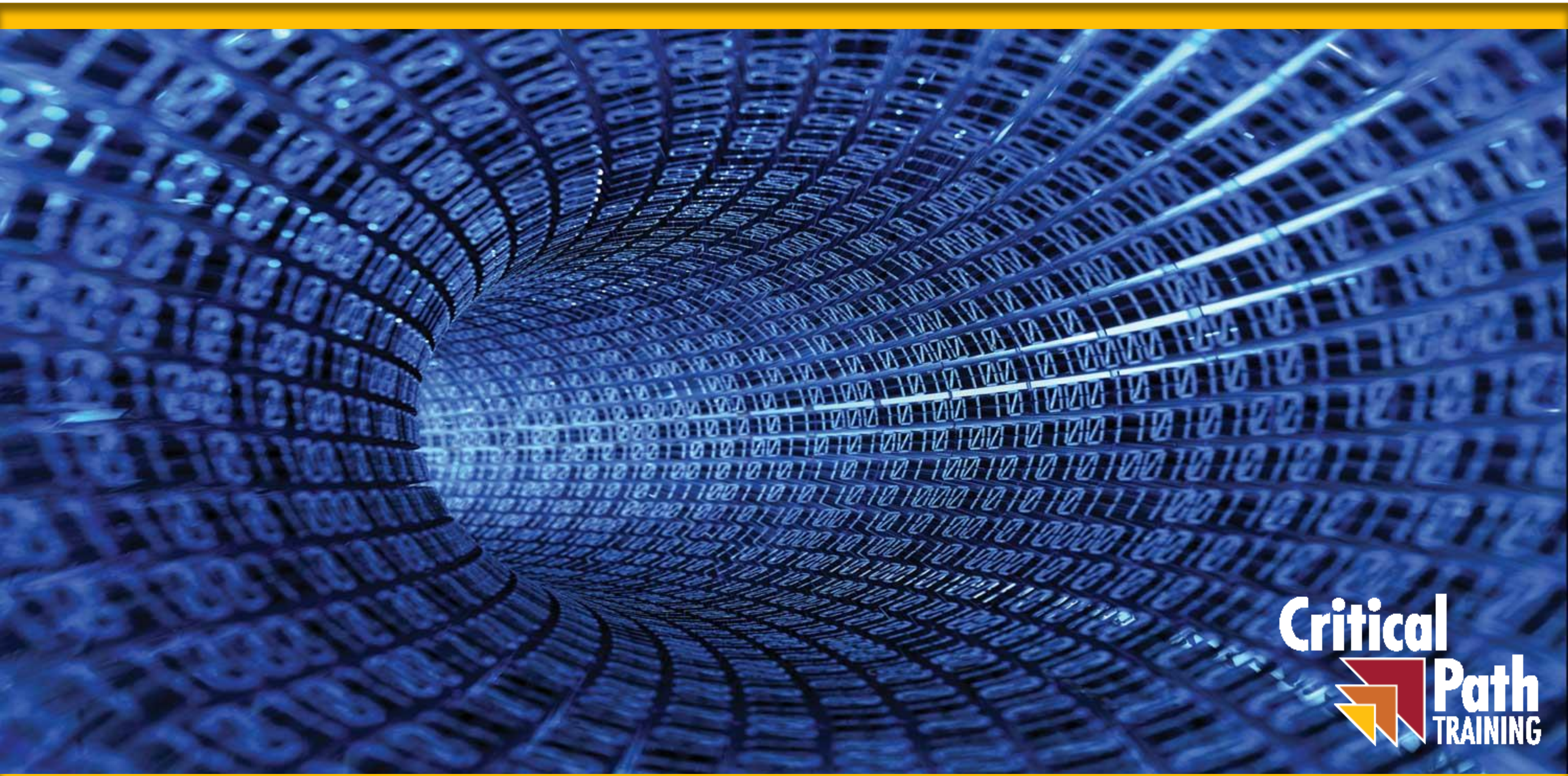
Developer Overview of Azure and Office 365



Critical Path TRAINING

Student Introductions

- Basic Info
  - What’s your name?
  - Where do you work? (optional)
  - How long have you been a developer?
- List skills with which you already feel comfortable
  - .NET programming with C# or VB.NET
  - SharePoint farm solution development
  - JavaScript, jQuery and Angular
  - Programming with REST and OData
  - Developing with ASP.NET MVC and Web API
  - Developing with AngularJS using version 1.0, 1.5 or 2.0

Agenda

- Microsoft Azure Platform Overview
- Extending SharePoint Online
- Developing with Azure Active Directory
- Developing with the Visual Studio 2017
- Developing with Node.JS & Visual Studio Code
- Getting Started with Office 365 & Microsoft Azure

Cloud Computing 101

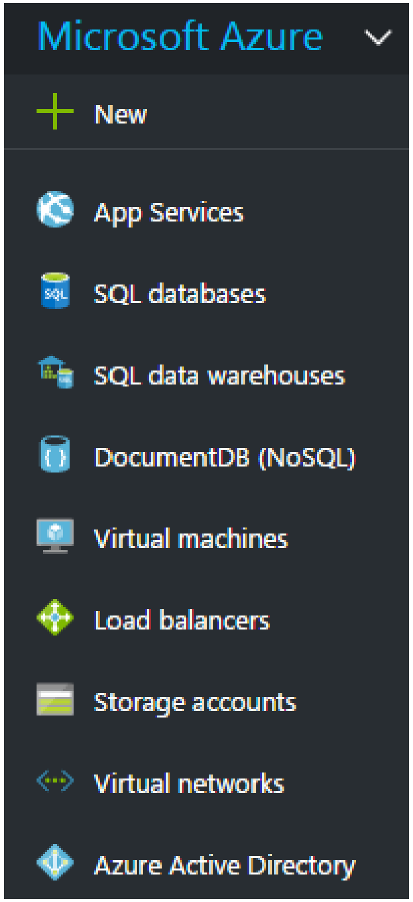
- On-demand Service
  - Lessens/eliminates need for IT department to assist
- Resource Pooling
  - Cloud-abstracted infrastructure
- Rapid Elasticity
  - Scale up, Scale down, Scale out, Scale in
- Measured Services
  - You pay for what you use
- DevOps
  - Better coordination between developers and IT department

Cloud Computing Service Models

- **SaaS** – Software as a service
  - Examples include Salesforce and Office 365
- **PaaS** – Platform as a service
  - Examples include Azure Web Apps
- **DaaS** – Database as a service
  - Examples include Azure SQL databases
- **IaaS** – Infrastructure as a service
  - Examples include Azure VMs and cloud services

Azure Services Overview

- Azure provides PaaS, DaaS and IaaS Services
  - App Service Plans and Web Apps
  - SQL databases
  - Virtual machines
  - Storage accounts
  - Virtual networks
  - Load balancers
  - Cloud Services
  - Azure Active Directory

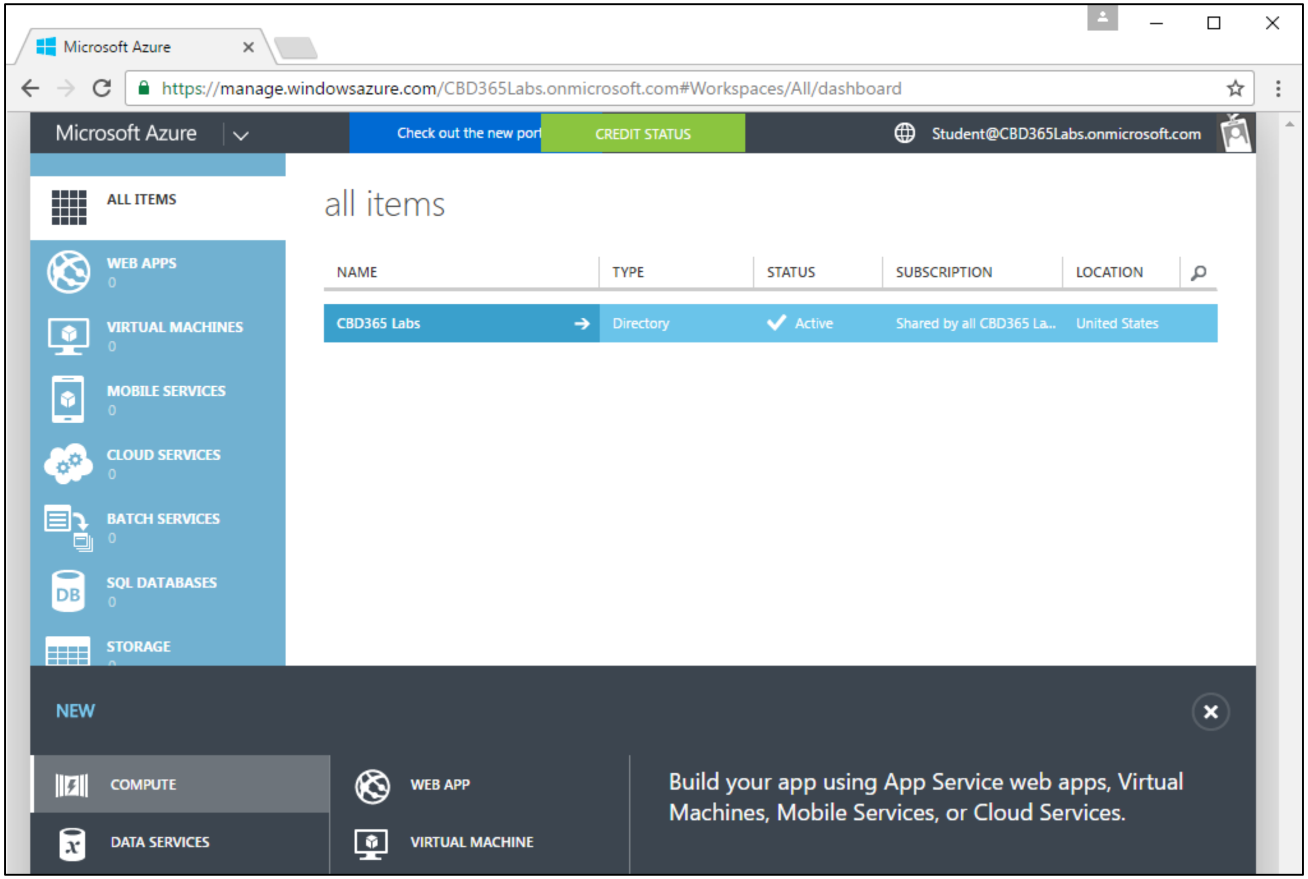


Azure Architecture: ASM vs. ARM

- Azure Service Management
  - Used when you work with the Classic Azure Portal
  - XML-based REST API
  - VMs made accessible through Azure cloud services
- Azure Resource Manager
  - Used when you work with the New Azure Portal
  - JSON-based REST API
  - Resources are JSON template-based containers
  - Replaces cloud services with virtual networks
  - Introduces Resource Groups as organizational containers
  - Introduces Role-based access control (RBAC)

Classic Azure Portal

- You can work with Azure using the classic portal
  - Uses older service management infrastructure
  - Located at https://manage.windowsazure.com



https://manage.windowsazure.com/CBD365Labs.onmicrosoft.com#Workspaces/All/dashboard

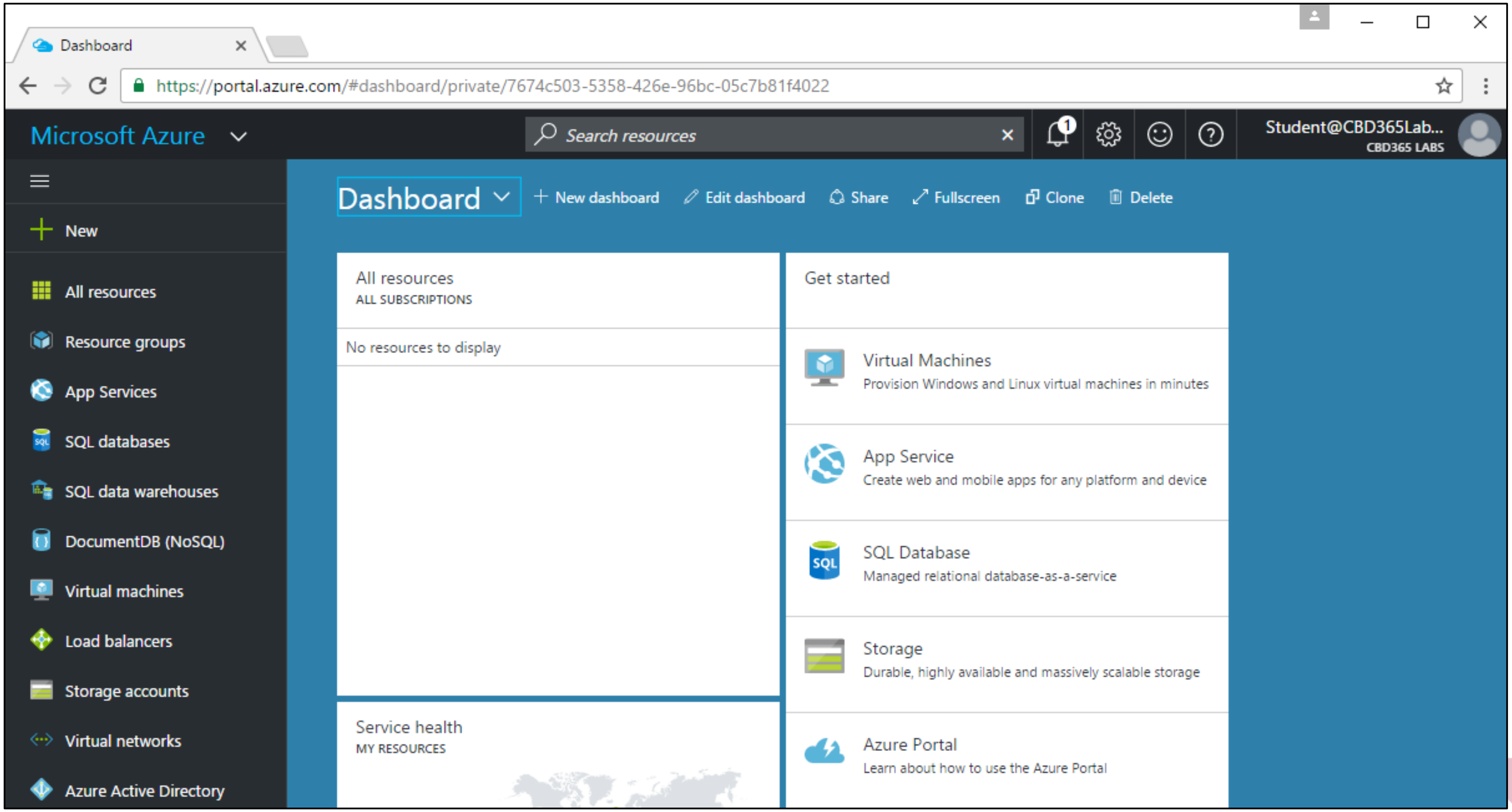
all items

NAME	TYPE	STATUS	SUBSCRIPTION	LOCATION
CBD365 Labs	Directory	✓ Active	Shared by all CBD365 La...	United States

Build your app using App Service web apps, Virtual Machines, Mobile Services, or Cloud Services.

New Azure Portal

- You can work with Azure using the new portal
  - Uses newer Resource Manager infrastructure
  - Located at https://portal.azure.com



No resources to display

Virtual Machines
Provision Windows and Linux virtual machines in minutes

App Service
Create web and mobile apps for any platform and device

SQL Database
Managed relational database-as-a-service

Storage
Durable, highly available and massively scalable storage

Azure Portal
Learn about how to use the Azure Portal

Essential Azure Services for Developers

- App Service Plans and Web Apps
- Virtual Machines and Virtual Networks
- Azure Storage Accounts
- Azure SQL Databases
- Azure Active Directory

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Evolution of the SharePoint Platform

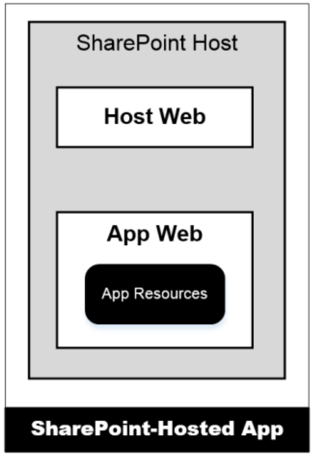
- Farm Solutions
- ~~Sandboxed Solutions~~
- SharePoint Add-ins
- JavaScript Injection
- SharePoint Framework (SPFx)

SharePoint App Add-in Model

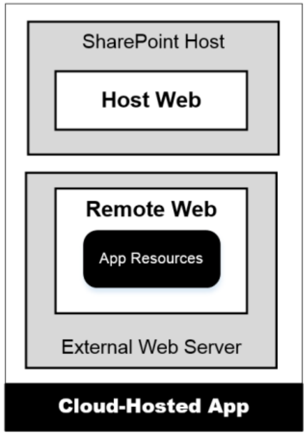
- SharePoint 2013 introduced new development model
  - Originally introduced as "SharePoint App” model
  - Marketing folks renamed "SharePoint App” to "SharePoint Add-in”
- Add-in model designed to replace farm solutions
  - Add-ins designed to supported SPO and SharePoint on-premises
  - Add-in code not allowed to run on SharePoint host server
  - Add-in talks to SharePoint using REST and CSOM
  - Add-in authenticates and establishes add-in identity
  - Add-in has permissions independent of user
  - Add-ins deployed to catalogs using publishing scheme

Hosting Options for SharePoint Add-ins

- SharePoint-Hosted Add-ins
  - Add-in resources added to SharePoint host
  - Stored in child site known as **app web**
  - Add-in has only client-side code
  - Add-in cannot have server-side code



- Provider-Hosted Add-ins
  - Add-in resources deployed on remote server
  - Remote site known as **remote web**
  - Add-in can have client-side code
  - Add-in can have server-side code



APIs used by SharePoint Add-ins

- SharePoint REST API
  - Commonly used with client-side JavaScript code
  - Good fit when developing SharePoint-hosted add-ins
  - Accessible to any type of client on any platform

- Client-side Object Model (CSOM)
  - Commonly used with server-side C# code
  - Good fit when developing provider-hosted add-ins
  - Good fit when creating desktop clients (e.g. Console app)
  - Used to perform remote provisioning in SPO sites

JavaScript Injection

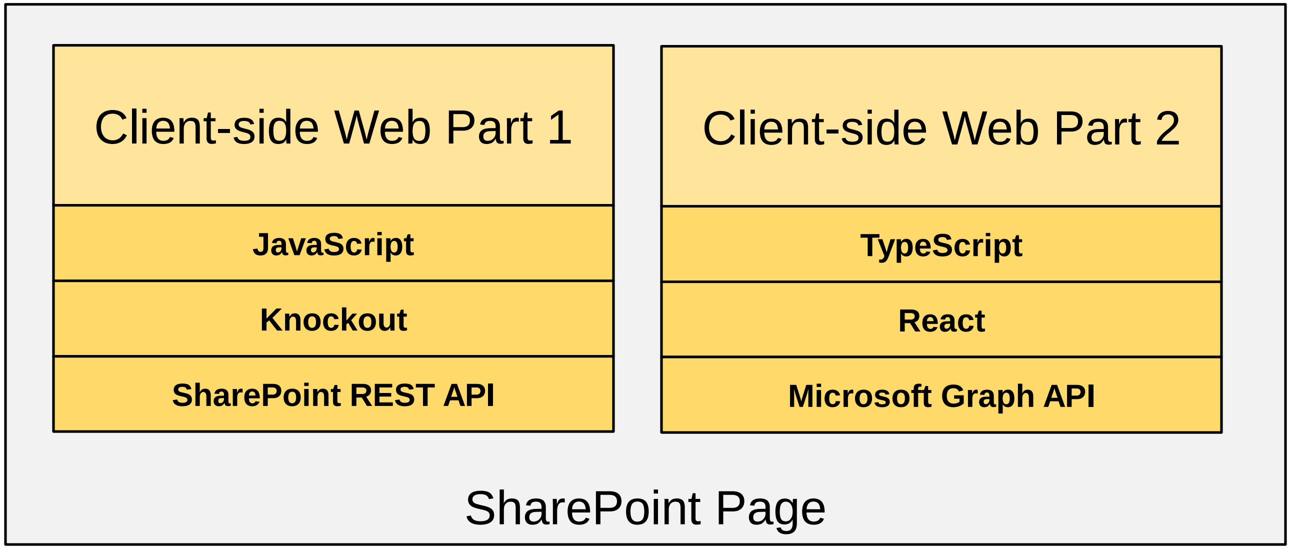
- JavaScript injection based on central concept…
  1. upload custom JavaScript code to SharePoint Online
  2. execute code using identity and permissions of current user
- Approaches for using JavaScript injection
  - Script Editor Web Part
  - Adding JavaScript code behind SharePoint site pages
  - Full-blown Visual Studio project development
- Why create solution using JavaScript Injection?
  - Provides more flexibility than SharePoint add-in model
  - Poses fewer constraints than SharePoint add-in model

Remote Provisioning

- Remote provisioning in SPO
  - Use CSOM to create SPO site elements
  - Recommended over SharePoint solutions & features
- What can you create with Remote Provisioning
  - New child sites, lists and document libraries
  - Site columns, content types and remote event receivers
  - New pages with custom JavaScript logic
  - User custom actions with custom JavaScript logic

The SharePoint Framework (SPFx)

- Development model based on pages and web parts
  - Based on client-side development with JavaScript or TypeScript
  - Code runs with authenticated identity of current user
  - Easy access to SharePoint and Office 365 content and data
  - Developer tools designed to support cross-platform development
  - Great support for targeting mobile devices



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Azure Active Directory and Office 365

- Office 365 environments are based on tenancies
  - Tenancy provides scope for creating and managing users
- Office 365 is integrated with Azure Active Directory (AAD)
  - Each Office 365 tenancy is backed by an AAD directory
  - AAD directory can be managed using Office 365 administration
  - AAD directory can be managed using Windows Azure Portal
  - Azure support registering application within scope of AAD directory

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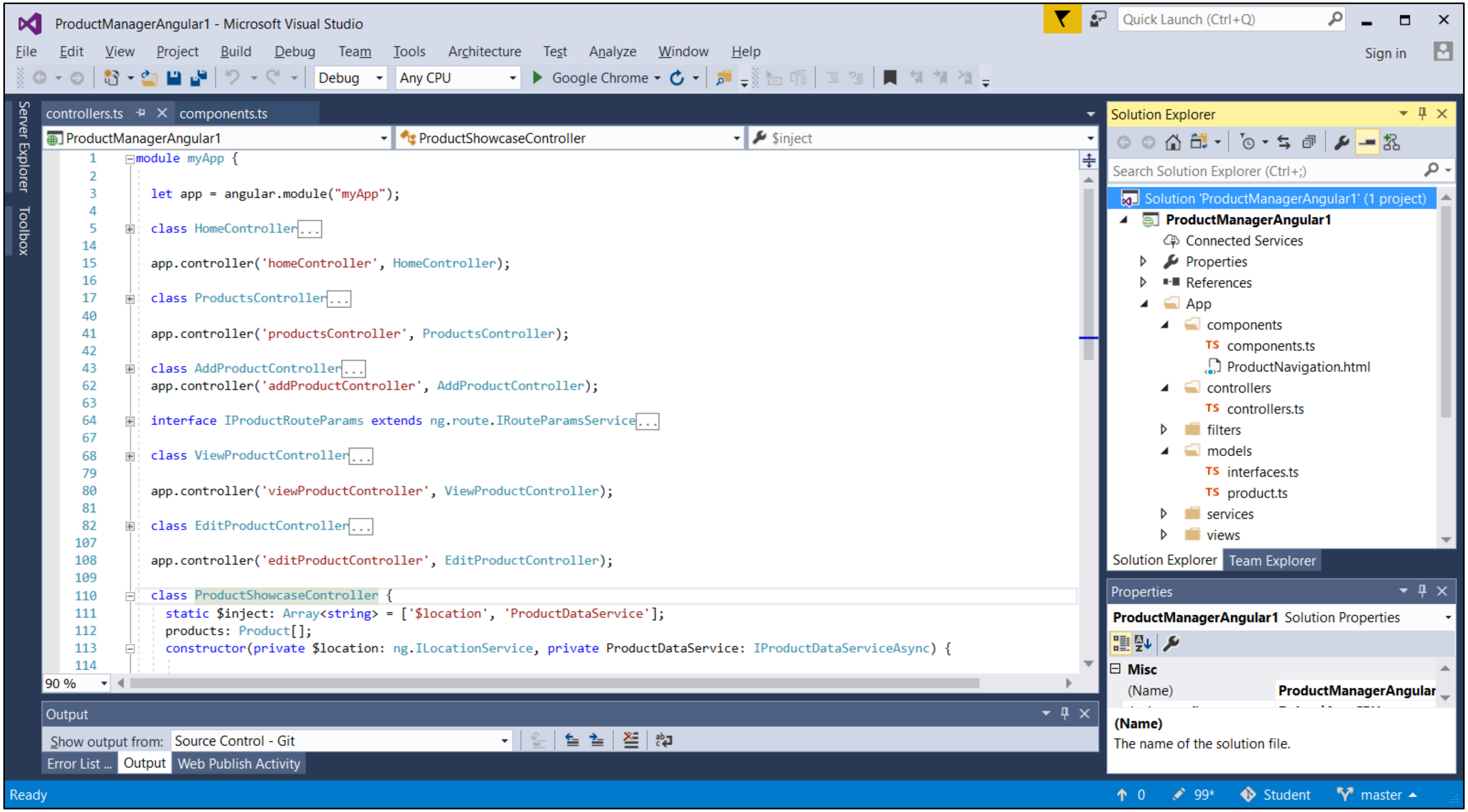
Developing with Visual Studio 2017



```
module myApp {

    let app = angular.module("myApp");

    class HomeController...

    app.controller('homeController', HomeController);

    class ProductsController...

    app.controller('productsController', ProductsController);

    class AddProductController...
    app.controller('addProductController', AddProductController);

    interface IProductRouteParams extends ng.route.IRouteParamsService...

    class ViewProductController...

    app.controller('viewProductController', ViewProductController);

    class EditProductController...

    app.controller('editProductController', EditProductController);

    class ProductShowcaseController {
      static $inject: Array<string> = ['$location', 'ProductDataService'];
      products: Product[];
      constructor(private $location: ng.ILocationService, private ProductDataService: IProductDataServiceAsync) {
```

ProductManagerAngular1 Solution Properties

Misc

(Name) ProductManagerAngular

(Name)
The name of the solution file.

Show output from: Source Control - Git

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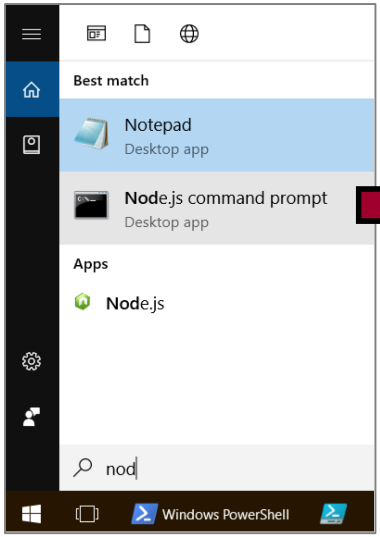
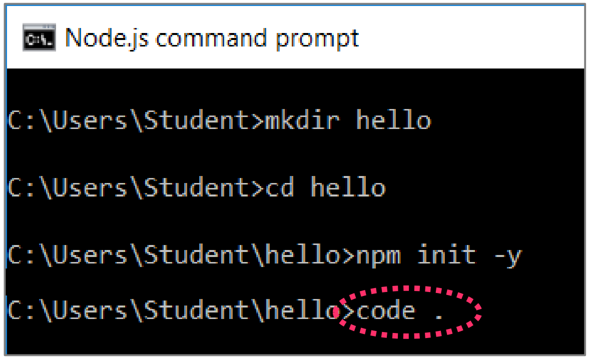
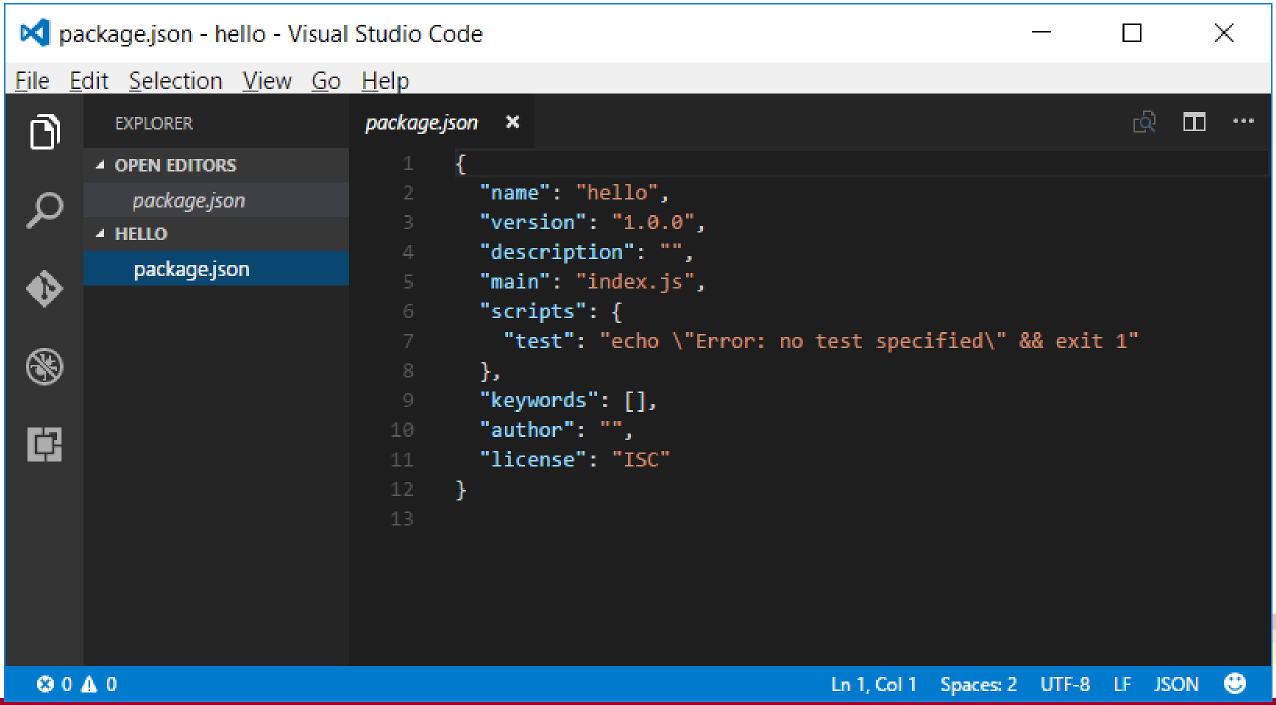
Developing with NPM & Visual Studio Code



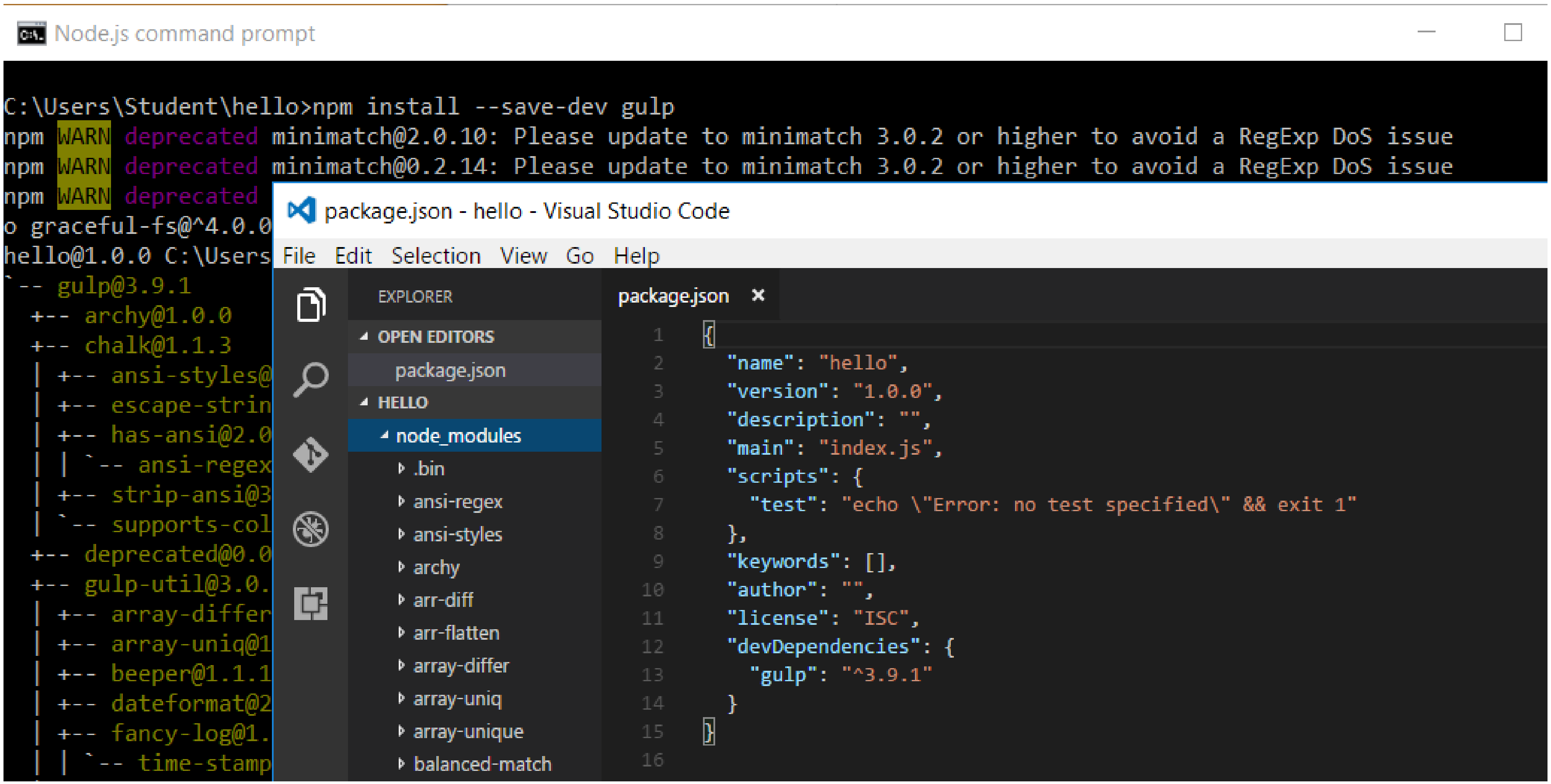


```
C:\Users\Student>mkdir hello

C:\Users\Student>cd hello

C:\Users\Student\hello>npm init -y

C:\Users\Student\hello>code .
```



```
{
  "name": "hello",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

```

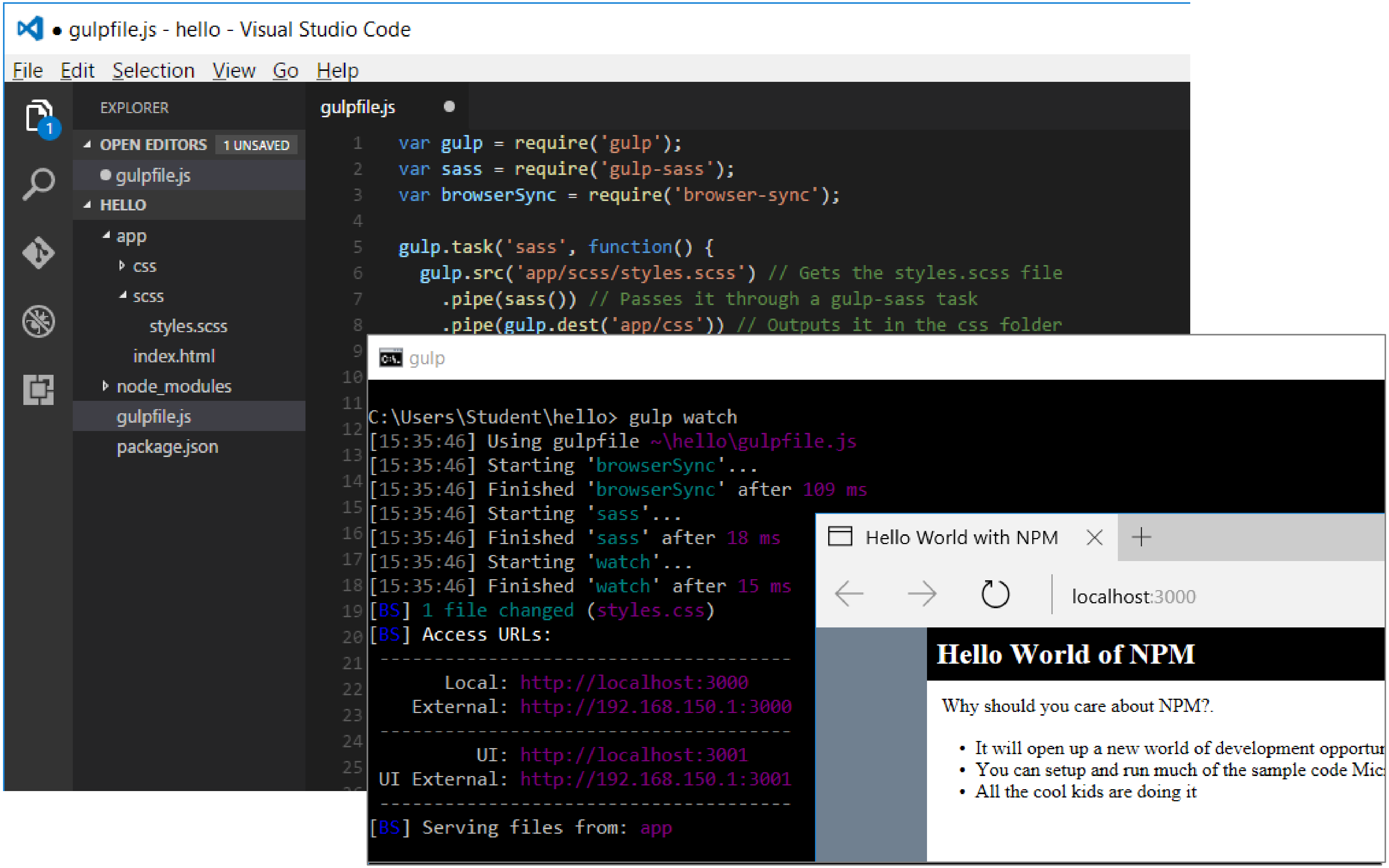
Adding NPM Packages



```
C:\Users\Student\hello>npm install --save-dev gulp
npm WARN deprecated minimatch@2.0.10: Please update to minimatch 3.0.2 or higher to avoid a RegExp DoS issue
npm WARN deprecated minimatch@0.2.14: Please update to minimatch 3.0.2 or higher to avoid a RegExp DoS issue
npm WARN deprecated
o graceful-fs@^4.0.0
hello@1.0.0 C:\Users
`-- gulp@3.9.1
  +-- archy@1.0.0
  +-- chalk@1.1.3
  | +-- ansi-styles@
  | +-- escape-strin
  | +-- has-ansi@2.0
  | | `-- ansi-regex
  | +-- strip-ansi@3
  | `-- supports-col
  +-- deprecated@0.0
  +-- gulp-util@3.0.
  | +-- array-differ
  | +-- array-uniq@1
  | +-- beeper@1.1.1
  | +-- dateformat@2
  | +-- fancy-log@1.
  | | `-- time-stamp
```

```json
{
  "name": "hello",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "devDependencies": {
    "gulp": "^3.9.1"
  }
}
```

Developing with Gulp Tasks



```
var gulp = require('gulp');
var sass = require('gulp-sass');
var browserSync = require('browser-sync');

gulp.task('sass', function() {
  gulp.src('app/scss/styles.scss') // Gets the styles.scss file
    .pipe(sass()) // Passes it through a gulp-sass task
    .pipe(gulp.dest('app/css')) // Outputs it in the css folder
```

```
C:\Users\Student\hello> gulp watch
[15:35:46] Using gulpfile ~\hello\gulpfile.js
[15:35:46] Starting 'browserSync'...
[15:35:46] Finished 'browserSync' after 109 ms
[15:35:46] Starting 'sass'...
[15:35:46] Finished 'sass' after 18 ms
[15:35:46] Starting 'watch'...
[15:35:46] Finished 'watch' after 15 ms
[BS] 1 file changed (styles.css)
[BS] Access URLs:
 --------------------------------------
       Local: http://localhost:3000
    External: http://192.168.150.1:3000
 --------------------------------------
          UI: http://localhost:3001
 UI External: http://192.168.150.1:3001
 --------------------------------------
[BS] Serving files from: app
```

Hello World of NPM

Why should you care about NPM?.

- It will open up a new world of development opportur
- You can setup and run much of the sample code Mic
- All the cool kids are doing it

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Getting Started with Cloud Development

- Obtain an Office 365 developer account
- Create an Office 365 Developer Site
- Obtain a Windows Azure subscription
- Develop solutions remotely with Visual Studio

- Getting around inside your Office 365 Tenancy
  - Office 365 administrative tools
  - SharePoint administrative tools
  - Azure Management Portal
  - PowerShell utilities

Office 365 Tenancies in SharePoint Online

- Office 365 environment based on tenancies
  - New tenancy is created for each customer organization
  - Tenancy provides scope for creating users and groups
  - Tenancy provides scope for creating SharePoint sites
  - Tenancy provides scope for SharePoint add-ins

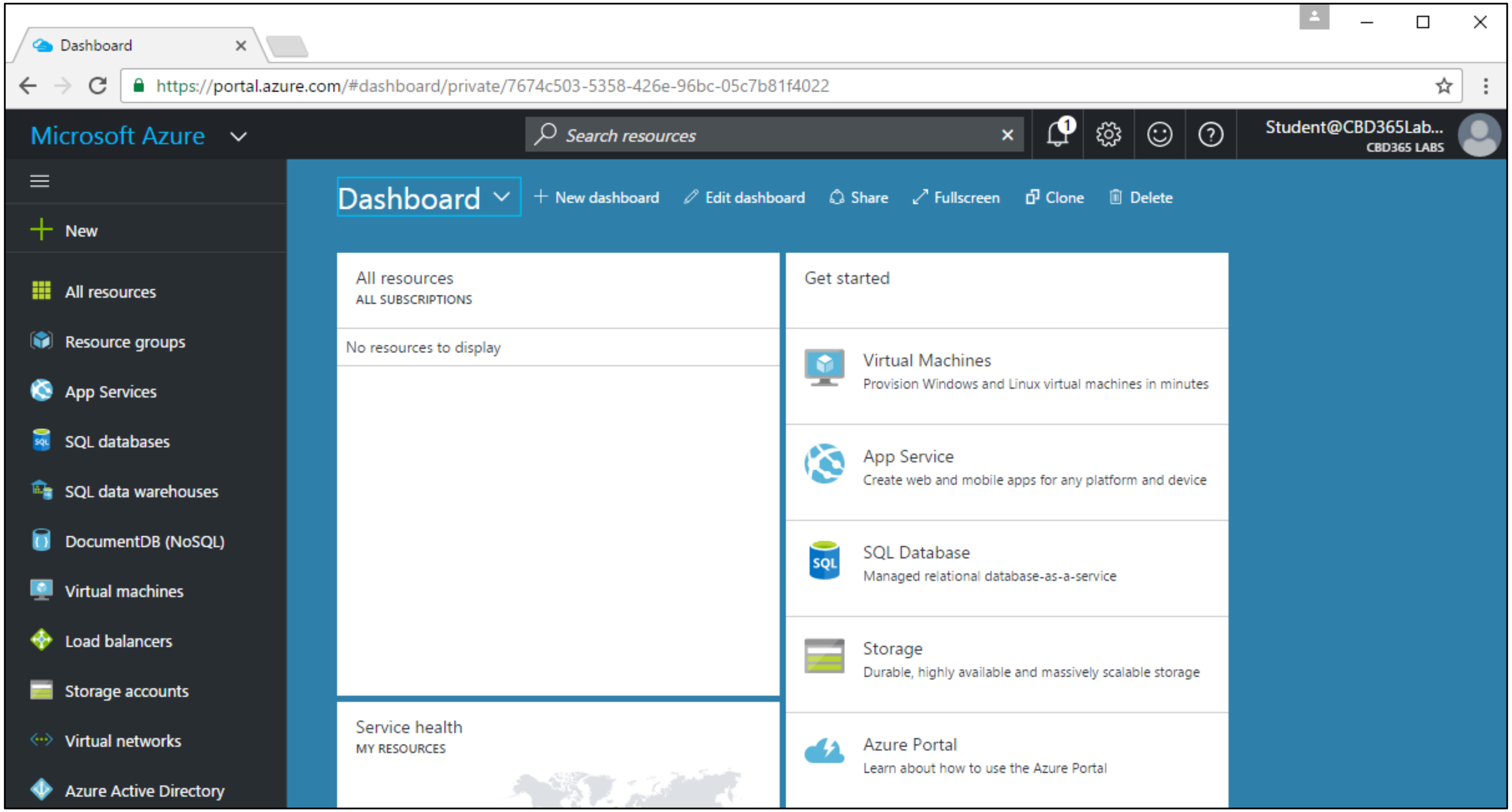
- Office 365 Developer should be tenant admin
  - Provides permissions you need to develop and test

Obtaining an Azure Subscription

- Getting an Azure Subscription
  - Sign up with paid-for account
  - Get free Azure subscription with a MSDN Subscription
  - Sign up for free 30-day trial account
- Signing up for free trial account
  - Navigate to Azure Portal using Office 365 credentials
  - When prompted, sign up for a trial

Getting Around inside the Azure Portal

- https://portal.azure.com



All resources
ALL SUBSCRIPTIONS

No resources to display

Service health
MY RESOURCES

Get started

Virtual Machines
Provision Windows and Linux virtual machines in minutes

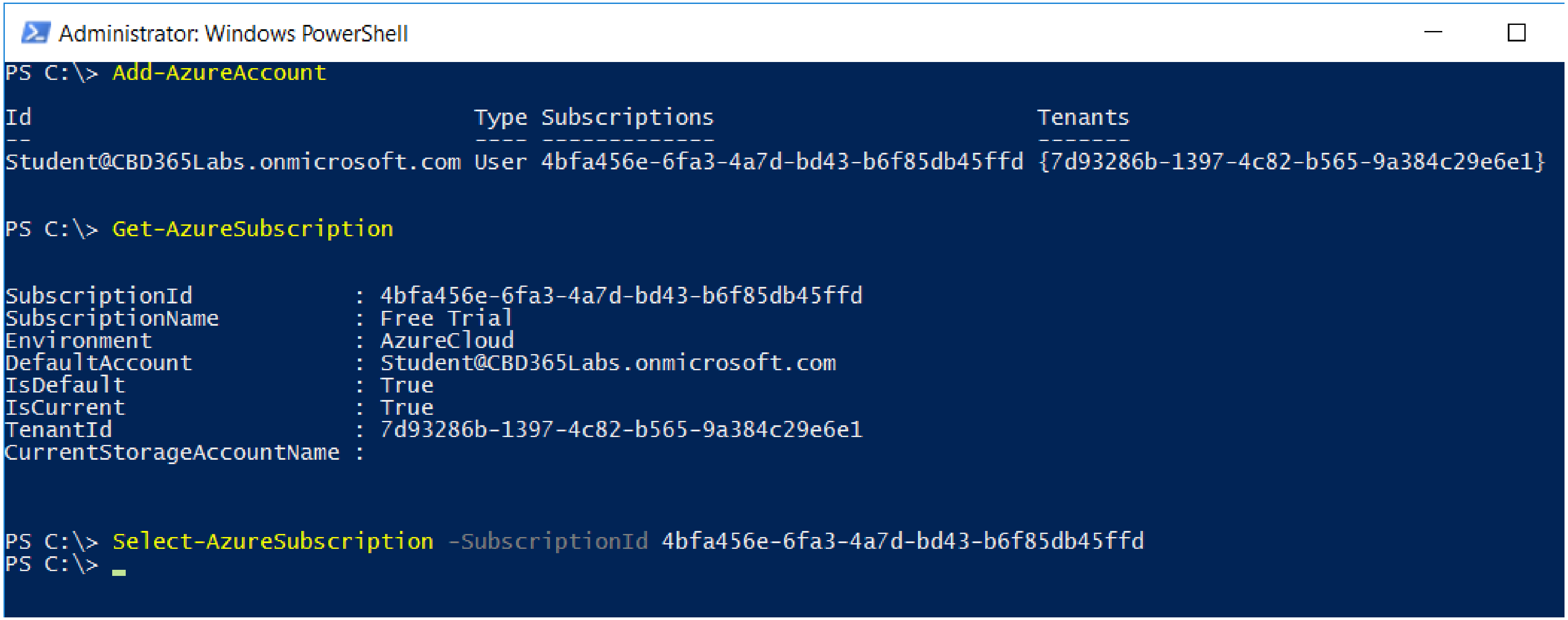
App Service
Create web and mobile apps for any platform and device

SQL Database
Managed relational database-as-a-service

Storage
Durable, highly available and massively scalable storage

Azure Portal
Learn about how to use the Azure Portal

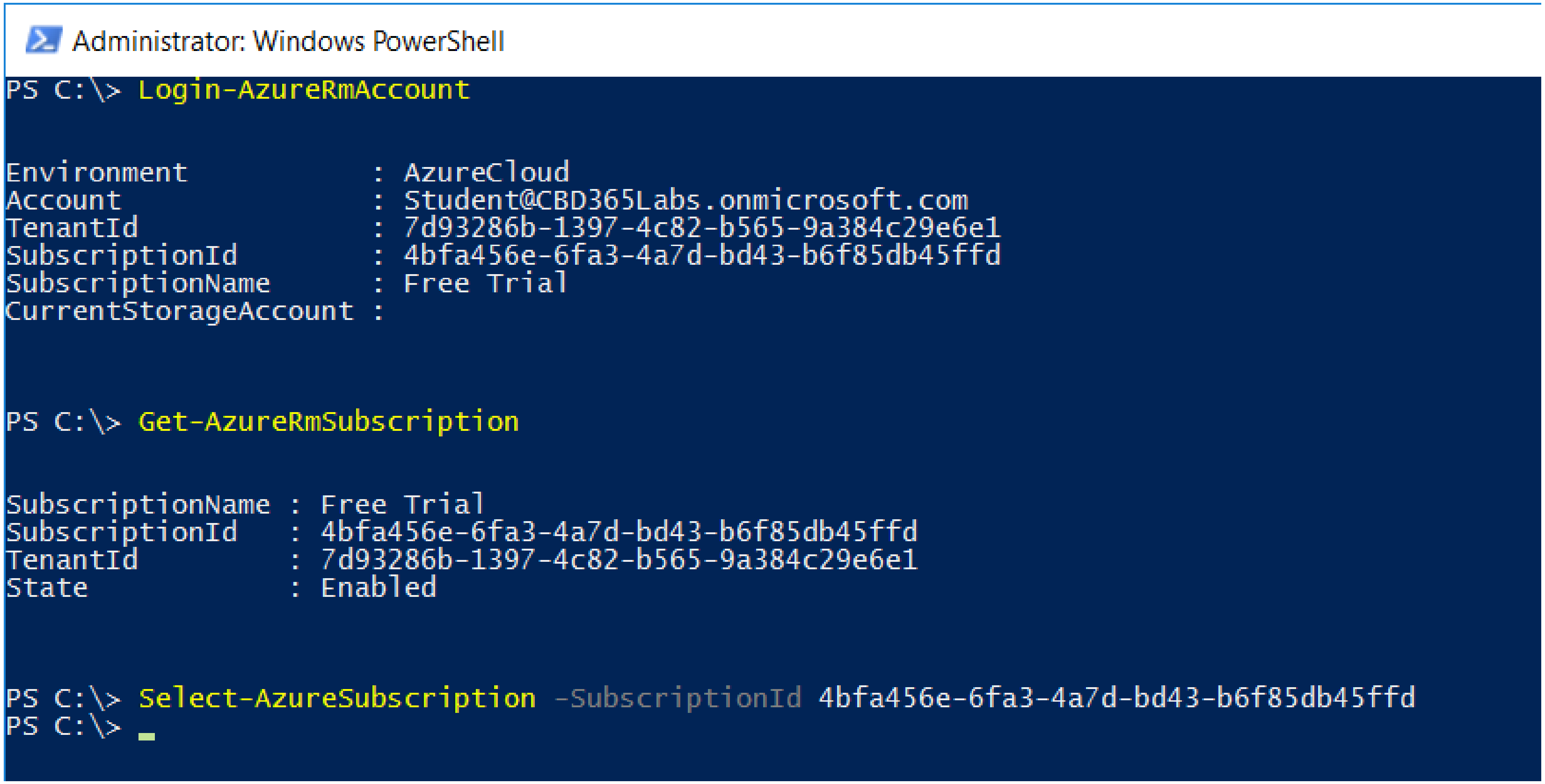
PowerShell with Service Management



Administrator: Windows PowerShell

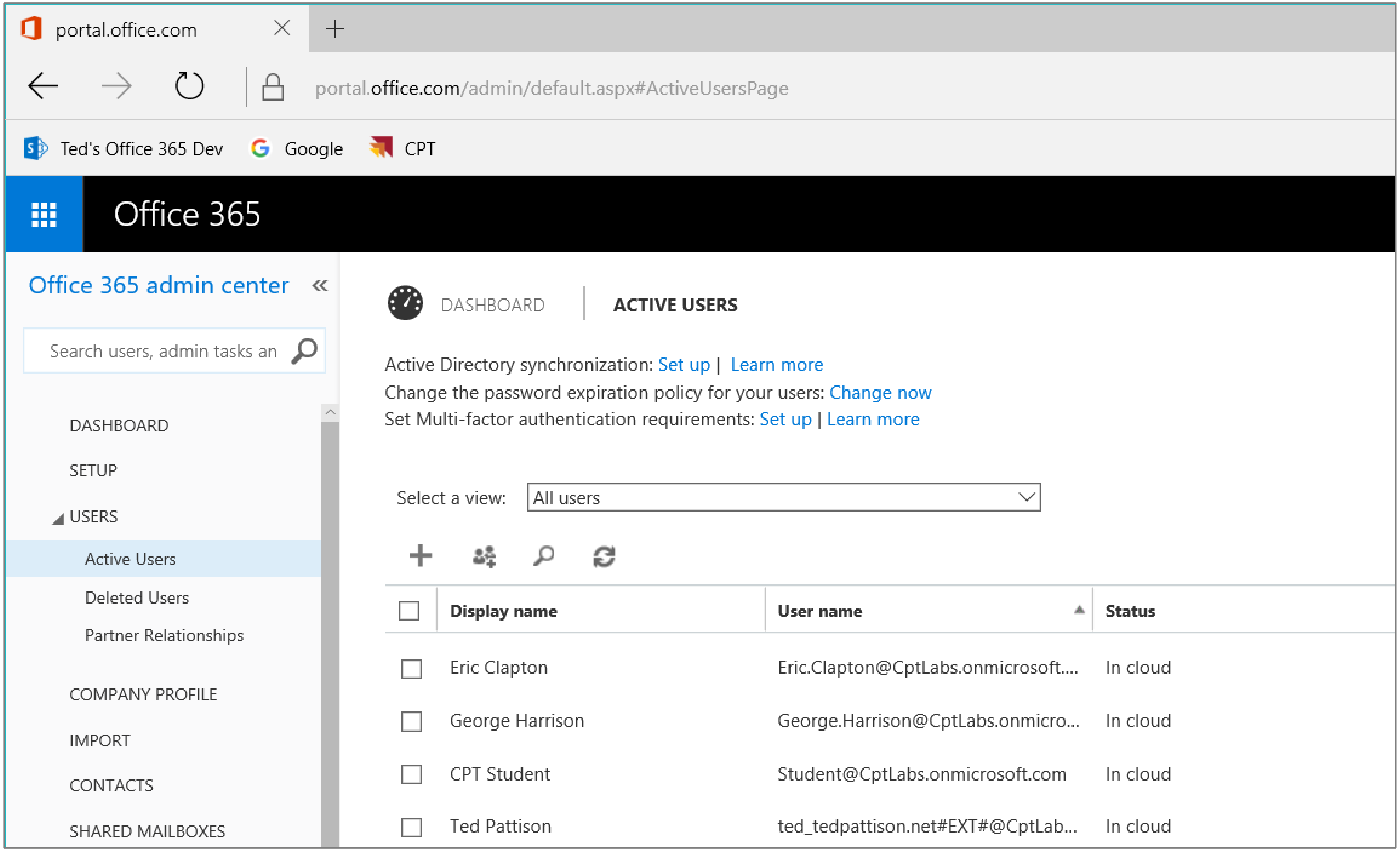
```
PS C:\> Add-AzureAccount

Id                                   Type Subscriptions                        Tenants
--                                   ---- -------------                        -------
Student@CBD365Labs.onmicrosoft.com User 4bfa456e-6fa3-4a7d-bd43-b6f85db45ffd {7d93286b-1397-4c82-b565-9a384c29e6e1}


PS C:\> Get-AzureSubscription


SubscriptionId            : 4bfa456e-6fa3-4a7d-bd43-b6f85db45ffd
SubscriptionName          : Free Trial
Environment               : AzureCloud
DefaultAccount            : Student@CBD365Labs.onmicrosoft.com
IsDefault                 : True
IsCurrent                 : True
TenantId                  : 7d93286b-1397-4c82-b565-9a384c29e6e1
CurrentStorageAccountName :



PS C:\> Select-AzureSubscription -SubscriptionId 4bfa456e-6fa3-4a7d-bd43-b6f85db45ffd
PS C:\> _
```

PowerShell with Resource Manager



```
PS C:\> Login-AzureRmAccount


Environment           : AzureCloud
Account               : Student@CBD365Labs.onmicrosoft.com
TenantId              : 7d93286b-1397-4c82-b565-9a384c29e6e1
SubscriptionId        : 4bfa456e-6fa3-4a7d-bd43-b6f85db45ffd
SubscriptionName      : Free Trial
CurrentStorageAccount :



PS C:\> Get-AzureRmSubscription


SubscriptionName : Free Trial
SubscriptionId   : 4bfa456e-6fa3-4a7d-bd43-b6f85db45ffd
TenantId         : 7d93286b-1397-4c82-b565-9a384c29e6e1
State            : Enabled



PS C:\> Select-AzureSubscription -SubscriptionId 4bfa456e-6fa3-4a7d-bd43-b6f85db45ffd
PS C:\> _
```

Office 365 admin center

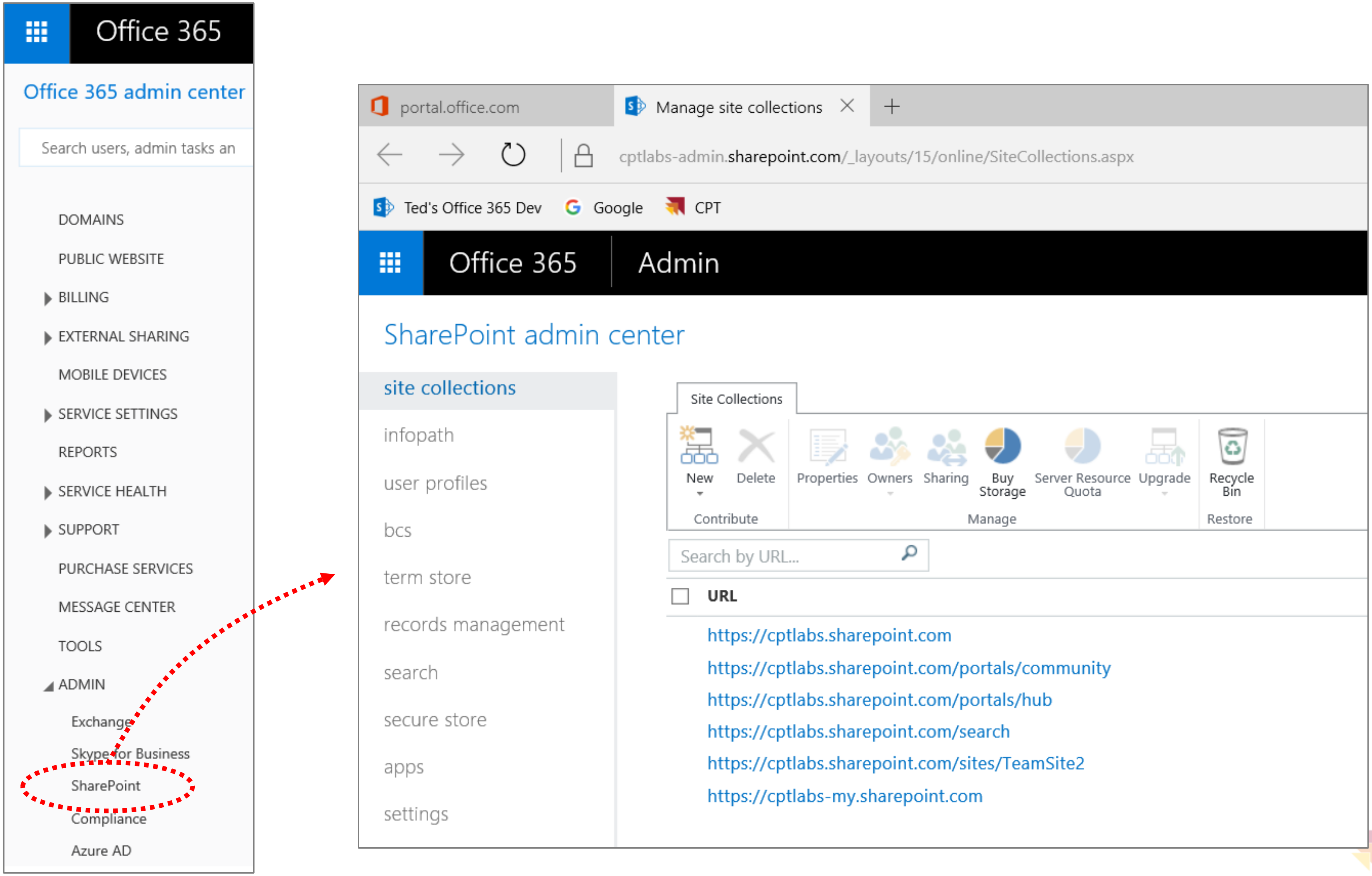


Active Directory synchronization: Set up | Learn more
Change the password expiration policy for your users: Change now
Set Multi-factor authentication requirements: Set up | Learn more

Select a view: All users

□	Display name	User name	Status
□	Eric Clapton	Eric.Clapton@CptLabs.onmicrosoft....	In cloud
□	George Harrison	George.Harrison@CptLabs.onmicro...	In cloud
□	CPT Student	Student@CptLabs.onmicrosoft.com	In cloud
□	Ted Pattison	ted_tedpattison.net#EXT#@CptLab...	In cloud

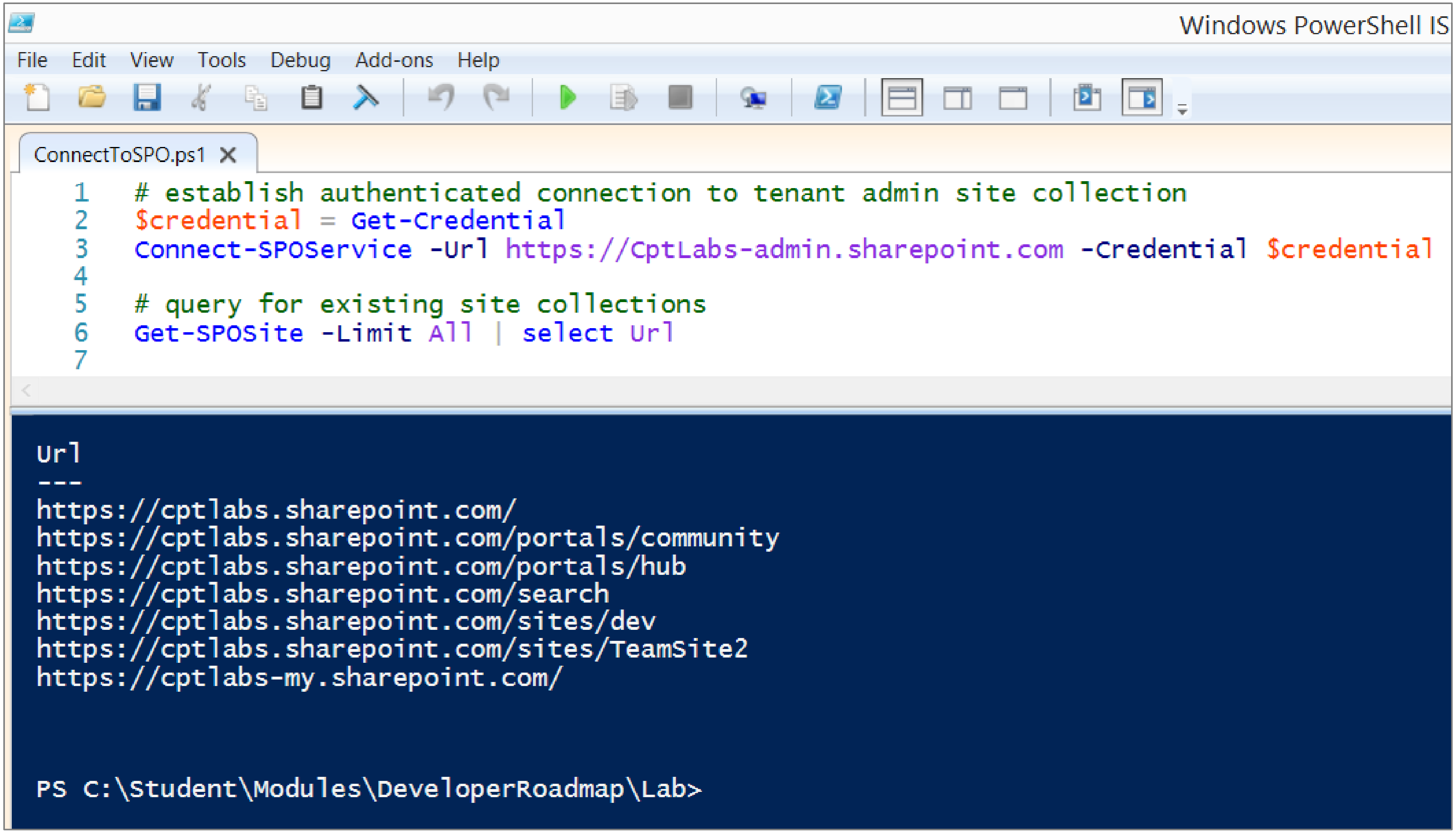
SharePoint admin center



cptlabs-admin.sharepoint.com/_layouts/15/online/SiteCollections.aspx

- https://cptlabs.sharepoint.com
- https://cptlabs.sharepoint.com/portals/community
- https://cptlabs.sharepoint.com/portals/hub
- https://cptlabs.sharepoint.com/search
- https://cptlabs.sharepoint.com/sites/TeamSite2
- https://cptlabs-my.sharepoint.com

SharePoint Online Management Shell



```
# establish authenticated connection to tenant admin site collection
$credential = Get-Credential
Connect-SPOService -Url https://CptLabs-admin.sharepoint.com -Credential $credential

# query for existing site collections
Get-SPOSite -Limit All | select Url
```

```
Url
---
https://cptlabs.sharepoint.com/
https://cptlabs.sharepoint.com/portals/community
https://cptlabs.sharepoint.com/portals/hub
https://cptlabs.sharepoint.com/search
https://cptlabs.sharepoint.com/sites/dev
https://cptlabs.sharepoint.com/sites/TeamSite2
https://cptlabs-my.sharepoint.com/



PS C:\Student\Modules\DeveloperRoadmap\Lab>
```

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