

Lesson Number 1

Name: Introduction to Server Side Programming

Description:

ACTIVITY - Housekeeping – 00:00

1. Syllabus

- location
- instructor info
- quick overview of syllabus

2. Expectations

- be in class
 - treat class like a job
 - we are industry colleagues
 - if absent, come to second class or review on YouTube
 - sign in form available at the front
- hand in inclass exercises, labs, and projects
 - late handins require 24 hours notice to avoid late penalty
 - late assignments are subject to 10%/day late penalty
 - inclass assignments need to be handed within 24 hours of being assigned
 - must be your own work (I know my code, and I will learn yours)
- quizzes
 - will be delivered at the beginning of class
 - will require a password to take
 - is completely closed book
 - worth 1% of total grade (there are 10 in total)
 - must be completed in class (as that is the only place you can get the password)

3. Help

- help is available
 - reviewing YouTube (<https://www.youtube.com/watch?v=AmmZ7fuy--c&list=PL7iHut-EaiFQK-bLZcERIq2gCr1Ae-yjA>)
(<https://www.youtube.com/watch?v=AmmZ7fuy--c&list=PL7iHut-EaiFQK-bLZcERIq2gCr1Ae-yjA>)
 - reviewing material on GitHub (<https://github.com/shaunmckinnon/georgian>)
(<https://github.com/shaunmckinnon/georgian>)
 - after class
 - through email
 - through Skype
 - one on one by request (if the above has been exhausted)

4. Tests

- part written, mostly practical

- must be taken in class
 - if other arrangements need to be made, you must speak with the testing center in C Building
 - you may use your notes and provided cheat sheet
 - no StackOverflow or any forums
 - no tutorial websites
 - you may use PHP Documentation or MySQL Documentation
 - you may use your text book

5. Projects

- subject to 10% late deduction for every day late
- must be own work (no c&p from the internet or friends. NOT a collaboration)
 - I will give a 0% to any plagerized projects
- the rubric will be a contract between you can me
 - if you follow the project you will be successful
 - I will not mark outside the rubric unless previously agreed

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ACTIVITY - Introducing You – 00:01

An exercise to briefly introduce each student.

Introductions

1. Take 10 minutes to learn as much as you can about the PHP language
 - What are some of the benefits of using PHP?
 - What are some of the syntax rules?
 - What are some web sites that use PHP?
 - How does it work
2. Once instructed, introduce yourself
3. Give one fact about PHP (Don't worry if it's already been stated. Try to be unique though.)

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Lesson 01 - Slide Deck – 00:15

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ACTIVITY - Why Web Development – 00:20

A quick group activity

1. Discuss why Web Applications can be better than Desktop Applications

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Anatomy of a Static Web Page - Slide Deck – 00:35

Review of HTML and CSS

How Static Web Pages are Processed

1. User requests a web page in their web browser (either by typing a link in the address bar or by clicking a link)

2. A request is built by the web browser and sent to the web server

NOTE: this request is known as an HTTP Request

3. The HTTP Request contains the following information Anatomy of an HTTP Request (<http://www.jonahnisen.com/how-does-an-http-request-work/>)
 1. The request type (GET, POST, PUT, DELETE, HEAD, TRACE, CONNECT) Request Types (<https://www.w3.org/Protocols/rfc2616/rfc2616-sec9.html>)
 2. The file being requested (/index.html, directory/index.php)
 3. The HTTP version being used (HTTP/1.1)
 4. The host address that has the file we're requesting (www.example.com)

4. When the hosting server receives the request, it checks the requested file's extension to establish which program or server should process the request

5. Once the request has been processed it the host server returns the requested file as an HTTP Response

6. The HTTP Response contains the following information:

1. The HTTP Response Status (HTTP/1.1 200 OK) HTTP Response Codes (<https://www.w3.org/Protocols/rfc2616/rfc2616-sec10.html>)

2. The Content Type (MIME type - Multipurpose Internet Mail Extensions) (text/html, application/x-doom, image/png) MIME Types (<http://www.freeformatter.com/mime-types-list.html>)

3. Content-Length
 4. Server (Apache, Nginx, IIS)
 5. The actual content
7. This request and response process relies on two protocols
1. HTTP - HyperText Transfer Protocol
a protocol that web browsers and servers use to communicate. It sets the specifications for HTTP requests and responses
 2. TCP/IP - Transmission Control Protocol/Internet Protocol
a suite of protocols that let two computers communicate over a network

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Anatomy of a Dynamic Web Page - Slide Deck – 00:45

Introducing PHP at a glance

How Dynamic Web Pages are Processed

1. User requests a web page in their web browser (either by typing a link in the address bar or by clicking a link)
2. A request is built by the web browser and sent to the web server
3. When the hosting server receives the request, it checks the requested file's extension to establish which program or server should process the request
4. A dynamic web page will use script in order to generate a web page with data from a script, database, API, file, or another source
5. Once the request has been processed it the host server returns the requested file as an HTTP Response

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Break - 01:00 |

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What is data? - Slide Deck – 01:10

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ACTIVITY - Facebook Broken Down – 01:11

Interactive Lesson

- posts
- profiles
- photos
- likes
- videos
- advertisements
- groups
- messages
- applications

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ACTIVITY - Amazon Broken Down – 01:15

Interactive Lesson

- customer information
- stores
- shipping info
- products
- reviews
- images
- orders
- history

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A thorough example - Slide Deck — 01:25

Introducing PHP syntax while also reviewing Static pages VS Dynamic pages.

- Opening and closing tags: `<?php ?>`
- The semicolon: `;`
- The file extension: `*.php`
- Commenting: `// this is a comment`
- Output: `echo "This is output";`
- Shorthand Output: `<?= "This is shorthand output" ?>`
- Variables: `$variable_name`
- Arrays: `$arr = ['value 1', 'value 2', 'value 3'];`
- Foreach Loops: `foreach($arr as $value) { echo $value; }`
- Shorthand Foreach Loops: `foreach ($arr as $value):
 echo $value;
endforeach;`

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Introduction to Class Tools — 01:35

FTP, IDE, Documentation, Text Book, MySQL Workbench

The Textbook, PHP/MySQL 2nd Edition

<https://www.murach.com/shop/murach-s-php-and-mysql-2nd-edition-detail>
(<https://www.murach.com/shop/murach-s-php-and-mysql-2nd-edition-detail>)

PHP Documentation

<http://php.net/manual/en/> (<http://php.net/manual/en/>)

MySQL Documentation

<https://dev.mysql.com/doc/refman/5.7/en/> (<https://dev.mysql.com/doc/refman/5.7/en/>)

Choosing an IDE

<https://www.jetbrains.com/student/> (<https://www.jetbrains.com/student/>)
<https://www.sublimetext.com/> (<https://www.sublimetext.com/>)
<https://netbeans.org/features/php/> (<https://netbeans.org/features/php/>)

Directory Structure

- comp-1006
 - shared
 - secrets.php

- connect.php
- lesson-01
 - examples
 - example_new.php
 - example_add.php
 - example_edit.php
 - example_update.php
 - example_delete.php
 - example_show.php
 - lab
 - lab_file.php
 - lab_01_firstname_lastname.zip
- lesson-02
 - examples
 - lab

Using Azure or Dreamhost

In-class setup of Azure. We will create a **secrets.php** file for environment based authorization.

Using Filezilla & SFTP

Follow these steps to connect to Dreamhost using FileZilla:

1. Go to **File -> Site Manager**
2. Click **New Site**
3. Give your new site a name (like **Dreamhost**)
4. Under **Host**, enter **computerstudi.es**
5. Under **Port**, enter **22**
6. Under **Protocol**, choose **SFTP - SSH File Transfer Protocol**
7. Change **Logon Type**, to **Normal**
8. Enter the **Username** you were provided
9. Enter the **Password** you were provided
10. Once complete, click **Connect** to test your settings
11. Next time you open **FileZilla**, you can quick connect using the **downarrow** under the **Site Manager** icon, and selecting your site

Using MySQLWorkbench

Follow these steps to connect to your MySQL Database through Dreamhost

1. Go to **Database -> Manage Connections**
2. Click **New** to create a new connection
3. Title your new connection (like **Dreamhost**)
4. Change **Hostname** to **sql.computerstudi.es**
5. Leave **Port** as **3306**
6. Enter the **Username** you were provided
7. Click **Test Connection**
8. Enter the **Password** you were provided (choose **Save in Vault** to avoid having to type it in everytime you connect)

Github Repository for Course

<https://github.com/shaunmckinnon/georgian> (<https://github.com/shaunmckinnon/georgian>)

Under the PHP Quick Help folder, you can find a few helpful bits of code to help with your syntax.

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ACTIVITY - Our Deployment Solution – 01:40

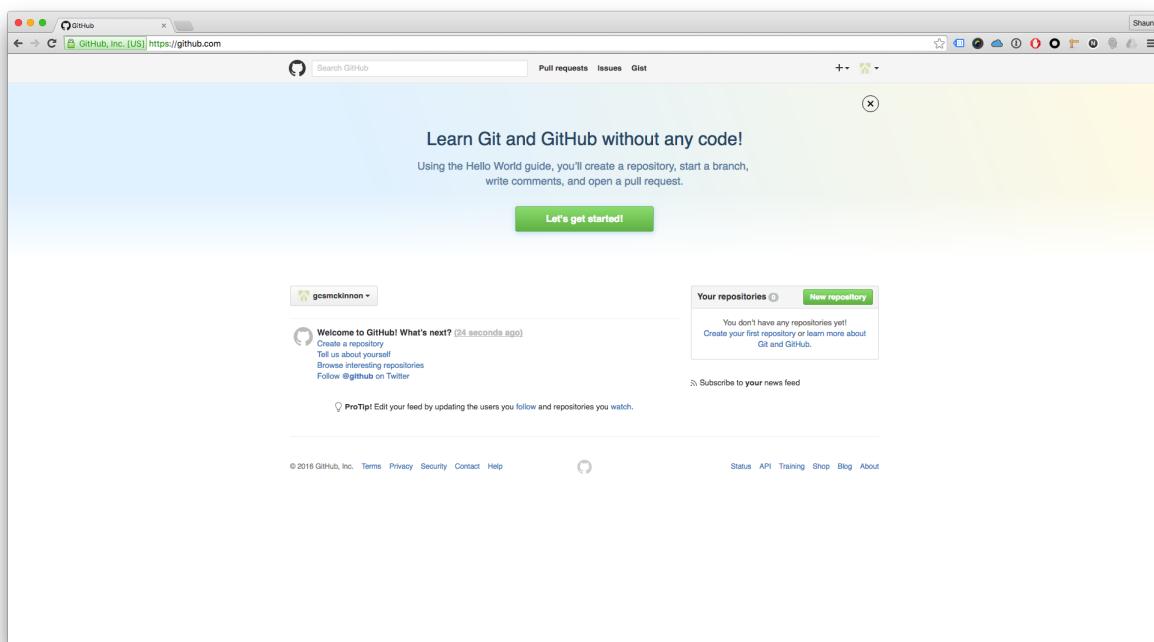
- GitHub
- Azure
- MySQL

GitHub

What is it?

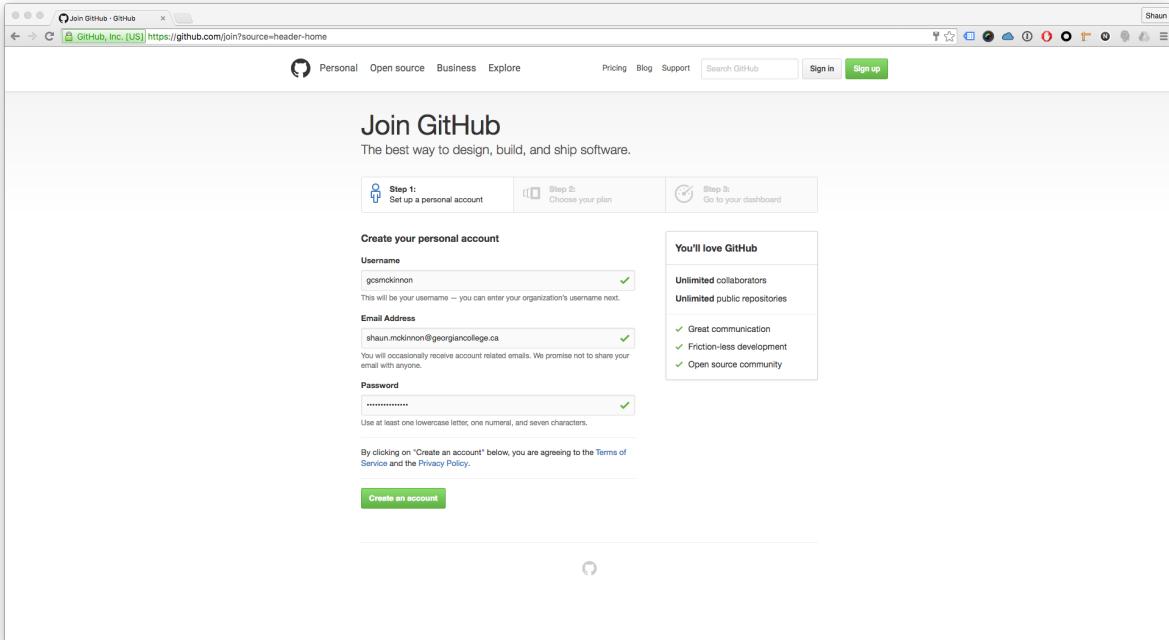
Creating a New Account

1. Go to <https://github.com/> (<https://github.com/>)
2. Fill in the info

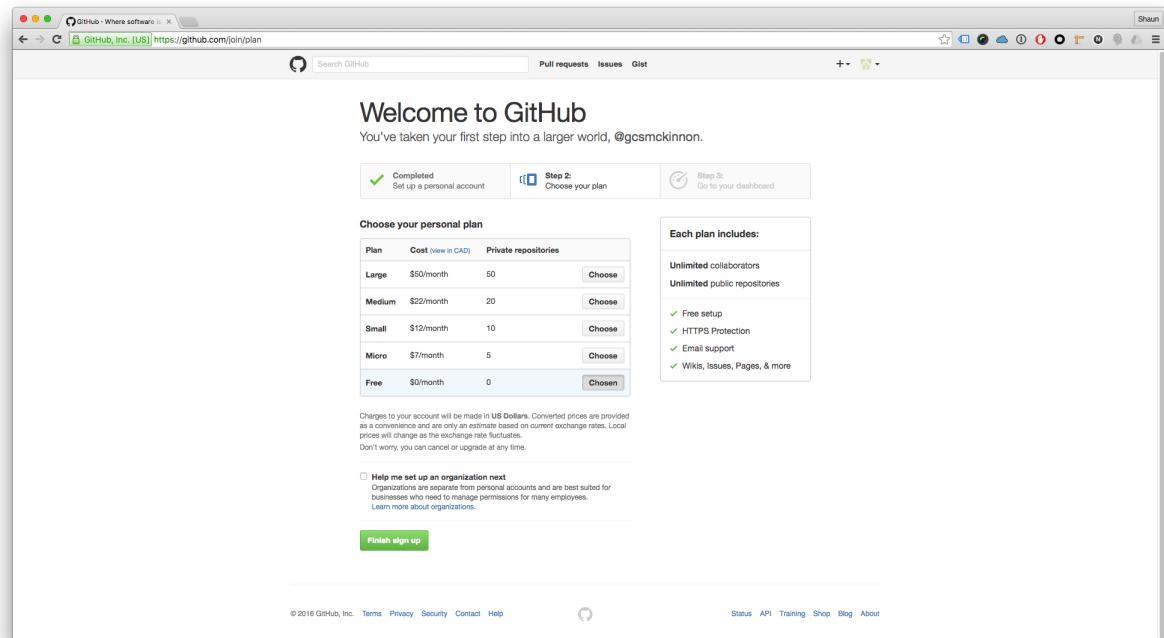


3. Click **Sign up for GitHub**

4. Fill in all the information

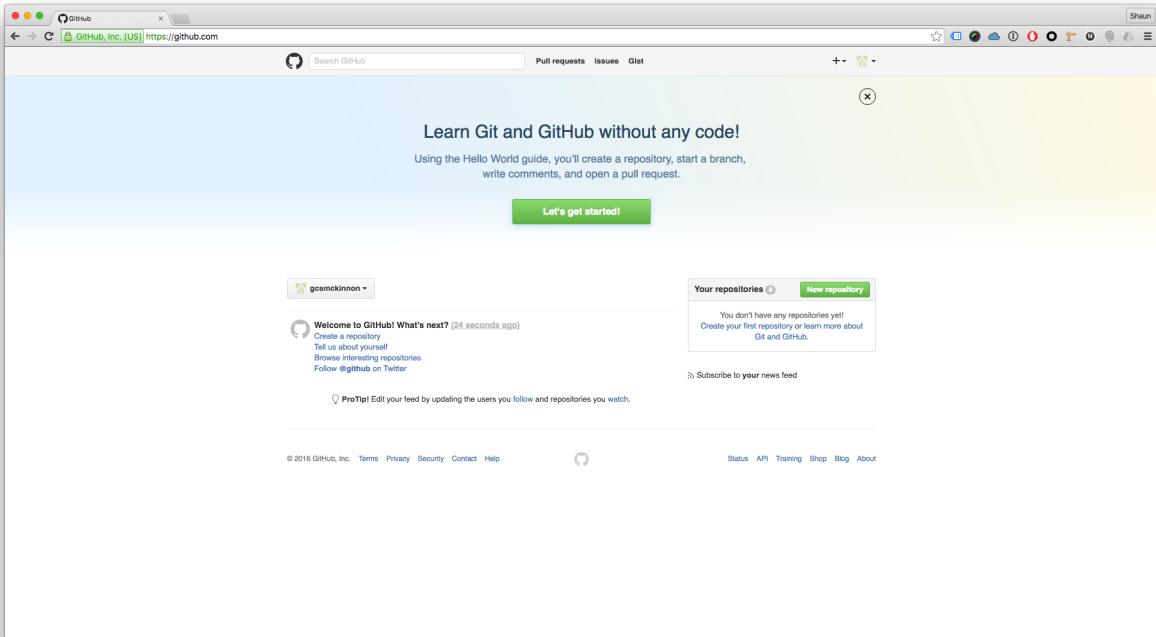


5. Choose **Free** for your **personal plan** and click **Finish sign up**



Creating First Repository

1. Click **New repository**

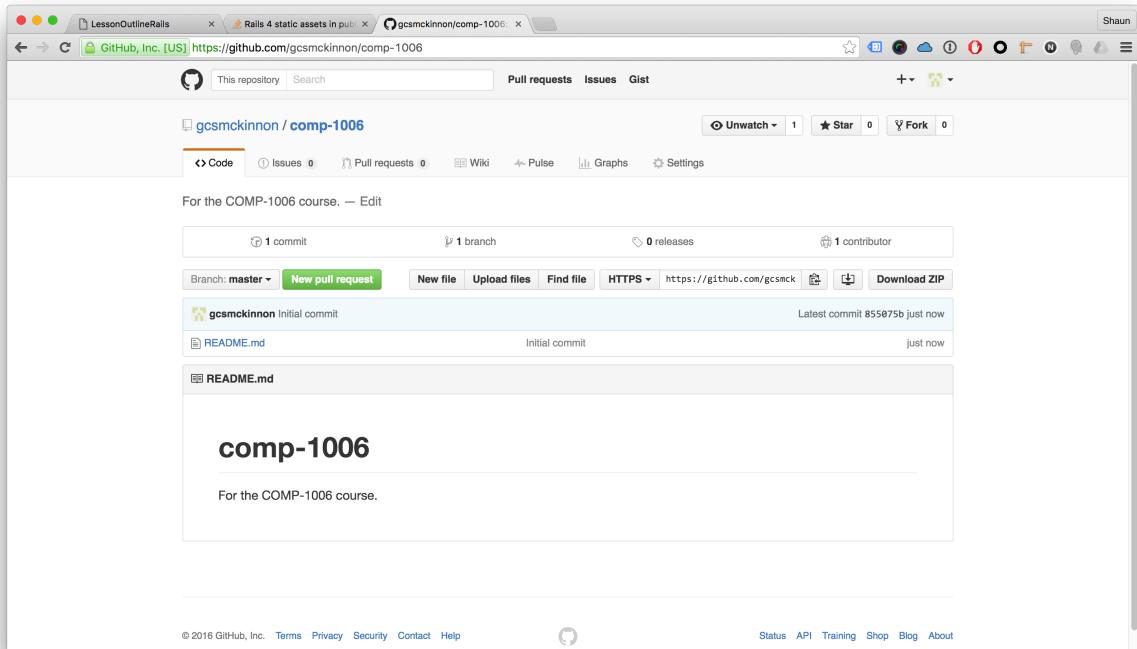


2. Set your Repository name as **comp-1006**

Choose **Public**

Check **Initialize this repository with a README**

Click **Create Repository**



Azure

Creating Personal Outlook Account (not necessary if you already have one)

1. Visit <https://login.live.com> (<https://login.live.com>)
2. Click **No account? Create one!**
3. Follow the steps to create a new, personal, Outlook account

Setting Up Azure (ensure you have a personal Outlook Account FIRST)

1. Visit <https://www.dreamspark.com>

<https://www.dreamspark.com>

(<https://www.dreamspark.com>)

2. Sign In with your **PERSONAL OUTLOOK ACCOUNT (!!!NOT YOUR STUDENT ACCOUNT!!!)**

https://login.live.com/login.srf?wa=wsignin1.0&rpsnv=12&ct=1462381865&rver=6.2.6289.0&wp=MBI_SSL&wreply=https%3A%2F%2Fwww.dreamspark.com...

3. Enter Your Account Information or update the fields as needed



<https://www.dreamspark.com/account/createaccount.aspx>

Your privacy is important. Please read our [privacy & cookies](#).

Enter Your Account Information

*Required Fields

First Name *

Last Name *

Date of Birth *

December 1978

Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

4. Enter your *School email address and Reenter school email address



<https://www.dreamspark.com/Account/MyAccount.aspx?GetVerified=true>

home students academic institutions what is DreamSpark?

FAQ

students

overview software catalog support

Welcome Shaun

Update your personal information, language preference, view details about your download history and products or verify your academic status here.

my profile

my student status

my downloaded software

Verify your student enrollment status

Verified DreamSpark.com students get full access to all our software and services at no cost. You can re-verify your status every year as long as you're a student. (If you have previously downloaded Microsoft software from your DreamSpark Standard or Premium school website you still need to verify your status with DreamSpark.com.)

Unsure which method to choose? We recommend younger students choose "I can upload a photo of a school enrollment document." Snap a photo of your report card, student ID, or other enrollment document, upload it, and we'll verify you within 3-5 business days.

I have a school email address

I have a school email address

Enter your school email address below. If your school is in our database, we will email you a verification link to click.

* School email address

* Reenter school email address

Processing...

I have a school login with Shibboleth

I have an International Student Identity Card

I have a DreamSpark verification code

I can upload a photo of a school enrollment document

5. An activation email will be sent to you. Takes about 5 minutes (you need it for week 2 at

the earliest)

The screenshot shows a web browser window with the URL <https://www.dreamspark.com/Account/MyAccount.aspx?GetVerified=true>. The page has a brown header bar with the word "students". Below the header, there are three tabs: "my profile" (grey), "my student status" (orange, currently selected), and "my downloaded software" (grey). A green message at the top states: "An activation email has been sent to you. Please follow the instructions in the email to get your account verified. If you don't receive anything in the next 24 hours, please check your junk filter prior to contacting support." To the right of the message is a "Continue" button with a circular arrow icon.

6. Click the -Navigate to: link in the email [Microsoft Academic Verification] Confirming Your Academic Status

The screenshot shows an email inbox with a single message from "Microsoft Academic Verification" to "shaun.mckinnon@georg...". The subject is "[Microsoft Academic Verification] Confirming Your Academic Sta...". The email body contains the following text:

Hello,

You have received this email because you recently requested verification via **Microsoft's Academic Verification** service. If you did not submit your email for this program, please disregard this email.

To complete your academic status verification, please click the link below. The link will automatically expire if not used within 5 days. After clicking the link, your verification status will be confirmed and you will return to the site.

-Navigate to:

Thank You,
The Microsoft Academic Verification Team

This mailbox is NOT monitored. Please DO NOT reply to this message.
If you have further questions, please click [here](#) to contact Customer Support Service.

This message from Microsoft is an important part of a program, service, or product that you or your company purchased or participate in.

Microsoft respects your privacy. Please read our [Privacy Statement](#).

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052 USA

7. Click the Register Now

<https://www.dreamspark.com/Product/Product.aspx?productid=99>

students overview software catalog support Welcome Shaun

Microsoft Azure for DreamSpark

Verify your academic enrollment with DreamSpark and start hosting web apps in Azure!

Two steps to get Microsoft Azure for DreamSpark:

1. **Verified Account**
2. **Register now**

If you are new to DreamSpark, you will need to verify your academic enrollment.

Microsoft Azure for DreamSpark gets you started with the services you need to develop in the cloud at no cost, using Visual Studio Community 2015:

- **NEW** Notification Hubs: keeps you in touch with users by enabling you to send mobile push notifications tailored by audience, language, and location using any back end, and major mobile platforms.
- **NEW** With Azure Mobile Apps, your cross-platform mobile app gains a cloud backend providing a variety of essential app services including authentication, social integration, offline data sync, and more, regardless of whether your app runs on Windows 10, iOS, or Android.
- **NEW** With SQL Database, build secure, global SaaS applications that support massive scale.
- **Azure App Service Web Apps** is a part of a fully managed cloud offering that enables you to build and deploy web apps in seconds. Use ASP.NET, Java, PHP, Node.js or Python. Run popular web apps and CMS solutions. Set up continuous integration and deployment workflows with VSO, GitHub, TeamCity, Hudson or...

8. Confirm the details in the About you and Verification by phone sections

<https://account.windowsazure.com/signup?offer=ms-azr-0144P>

Sign up

DreamSpark

Learn more ▾

Microsoft Azure

totheroot@hotmail.ca ▾

1 | About you

FIRST NAME: Shaun LAST NAME: McKinnon COUNTRY/REGION: Canada
CONTACT EMAIL: shaun.mckinnon@georgiancollege.ca

COMPANY/SCHOOL: Georgian College WORK PHONE: [redacted]

2 | Verification by phone

Send text message Call me

Canada (+1) **Send text message**

3 | Agreement

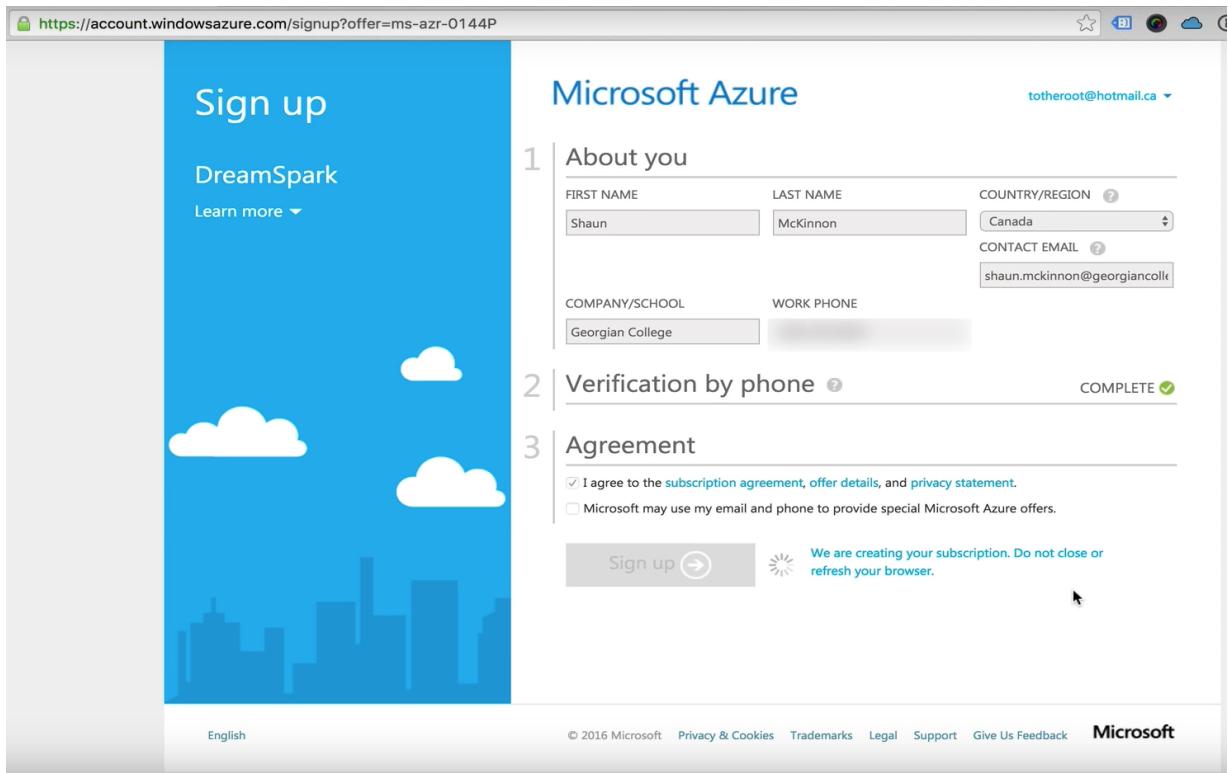
I agree to the [subscription agreement](#), [offer details](#), and [privacy statement](#).

Microsoft may use my email and phone to provide special Microsoft Azure offers.

Sign up

English © 2016 Microsoft Privacy & Cookies Trademarks Legal Support Give Us Feedback Microsoft

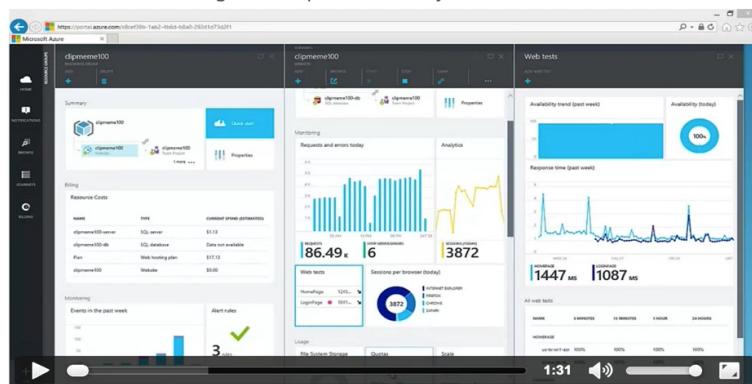
9. Click Sign up



10. Click Start managing my service >



Take a tour of the management experience while you wait.

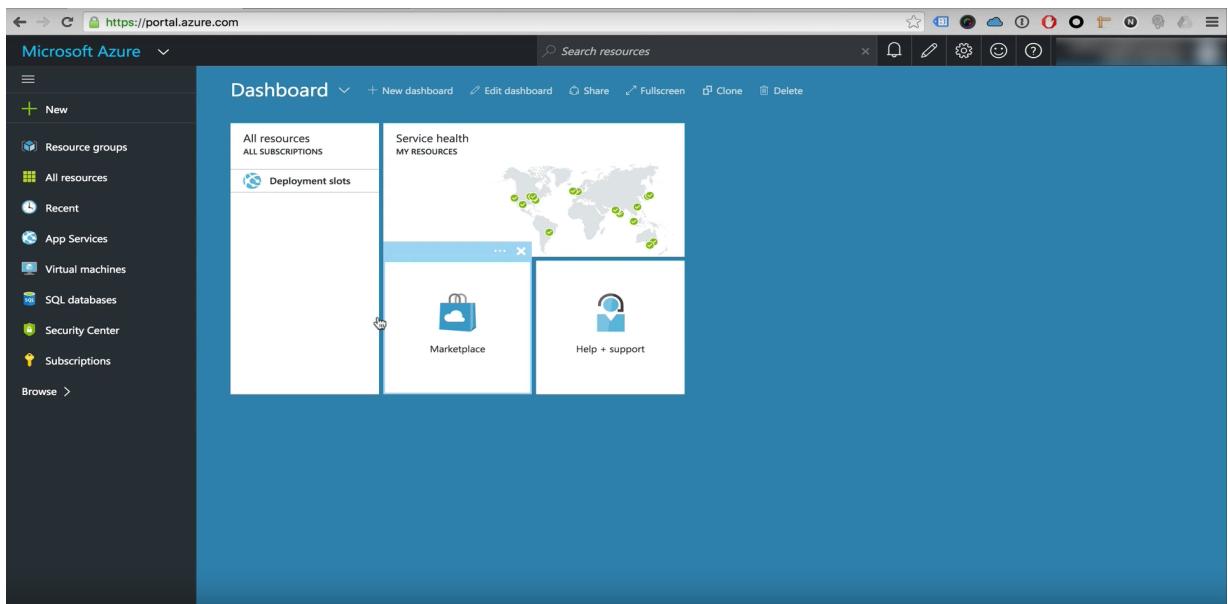


Tutorials

Get started with...

[Web Apps](#)
[Virtual Machines](#)
[SQL Database](#)
[Storage](#)

11. If everything is correct, you will see this window



Creating First Web App+ MySQL

1. Visit <https://portal.azure.com> (<https://portal.azure.com>)

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Break - 02:00 |

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ACTIVITY - What we learned about PHP... – 02:05

1. Visit <https://app.conceptboard.com/board/kisb-xm5g-5hz3-39n6-191k> (<https://app.conceptboard.com/board/kisb-xm5g-5hz3-39n6-191k>)
2. Sign in as a guest and use your first and last name
3. On the toolbar, click the Comment icon
4. Click the main sticky note, then drag and drop to create a comment box. In your comment box, type in your first and last name and some point-form notes about what you learned about PHP during the introductions
5. The final product will be converted into Study Notes and available to you in your Term Tests

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ACTIVITY - Static VS Dynamic Example – 02:10

Static VS Dynamic Example.zip on Blackboard

1. Why don't we see the PHP in the source code on the browser?

NOTES:

- PHP <?php ?> tags are important
- *.php extension is important
- Testing on local is important
- Publish to public only when local works without bugs

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ACTIVITY - Planning our in-class web app – 02:30

1. Visit <https://pollev.com/shaunmckinno119> (<https://pollev.com/shaunmckinno119>)
2. OR - Text SHAUNMCKINNO119 to 37607 once to join

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INCLASS - Lesson 01 – 02:45

A brief exploration of PHP - Worth 1% - 24 hours to submit

1. Download, extract, and open the **your-favourite-band.php** file in your IDE
2. Follow the comments and complete the lab
3. Upload/Deploy the lab to Dreamhost/Azure
4. Paste the link under Assignments -> InClass 01

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