New York University
Computer Science Department
Courant Institute of Mathematical Sciences

Course Title: Cloud Computing   **Course Number:** csci-ga.3033-026
Instructor: Jean-Claude Franchitti   **Session:** 1

Assignment #1

I.   Due

        February 17, 2022 at the beginning of class.

II.   Objectives

        1. Understand how to leverage IaaS in a Cloud application development context.
        2. Get familiar with multi-cloud environments and mashups.

III.   References

        1. Slides and handouts posted on the course Web site
        2. Textbook Part I.1 (Cloud, Big Data, and Cognitive Computing – Principle of Cloud Computing Systems)

IV.   Software Required

        1. Microsoft Word.
        2. Win Zip as necessary.

V.   Assignment

        1. Sign up for AWS account (signup for AWS EC2 and S3 services).

        2. Create a micro instance with SUSE 64 bit Linux stack with appropriate keys and access control.

        3. SSH into the instance you created.

        4. Setup an environment of your choice for Cloud Foundry (see recommended steps in section VI below).

        5. Install and test the kuard sample application.

6. Optional: Implement and test a simple Cloud application of your choice (e.g., 2048 game from https://github.com/bingosummer/2048, hello world application from https://github.com/cloudfoundry-community/simple-go-web-app) and deploy it on top of your Cloud Foundry environment.

7. Save the file as a Word document.

8. Name the file "**firstname_lastname_hw_1.doc**" (e.g., "john_doe_hw_1.doc").

9. Submit your assignment electronically via NYU Brightspace by the due date.

    Use the following naming convention in the subject line of the eMail:

    "**CC - firstname lastname - homework #"**
    (e.g.: "CC – John Doe - homework 1").

    In the case source code is submitted, include your name as a comment at the top of each file (note: all files submitted should include your name).

VI. Sample Steps

- Step V.4 should be performed using VMWare Tanzu via the links provided below:
  - https://tanzucommunityedition.io/docs/latest/cli-installation/
  - Please provide screen shots documenting your installation to demonstrate that you were able to follow all the steps and successfully deploy a Tanzu Community Edition management cluster, a workload cluster, and a sample application.

- For Step V.5, the kuard sample application can be dowloaded from:
  - https://docs.vmware.com/en/VMware-vSphere/7.0/vmware-vsphere-with-tanzu/GUID-E217C538-2241-4FD9-9D67-6A54E97CA800.html

- Refer to the installation log provided under the "demos" lesson on Brightspace.

- Note: The Cloud Foundry open source environment was (very recently) transitioned to VMWare's Tanzu Community Environment. Since then, the installation links related to Cloud Foundy on the Azure portal have been disabled. Other Cloud Foundry installation methods are unreliable at this time.

VII. Deliverables

1. Electronic:

    Your assignment file must be submitted via NYU Brightspace. The file must be

created and sent by the beginning of class. After the class period, the homework is late. The email clock is the official clock.

2. Cover page and other formatting requirements:

The cover page supplied on the next page must be the first page of your assignment file.

Fill in the blank area for each field.

NOTE:

The sequence of the electronic submission is:

    1. **Cover sheet**
    2. **Assignment Answer Sheet(s)**

3. Grading guidelines:

Assignment Layout (15%)
- o Assignment is neatly assembled on 8 1/2 by 11 layout.
- o Cover page with your name (last name first followed by a comma then first name), username and section number with a signed statement of independent effort is included.
- o File name is correct.

Answers to Individual Questions (85%):
- o Answers to steps V.1 to V.6 are correct.
- o Assumptions provided as required.

(100 points total, all questions weighted equally)

VIII. Sample Cover Sheet:

Name _____ Date: _____
            (last name, first name)
Section: _____

Assignment 1

Total in points (100 points total):   _____

Professor's Comments:

Affirmation of my Independent Effort: _____

<div align="center">(Sign here)</div>