

ADTA 5900/5750.501: Applied Natural Language Processing

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Assignment 3

1. Overview

The rise of cloud computing has facilitated the emergence of big data. Cloud computing commodifies computing time and data storage using standardized technologies.

Big data is a term for large volumes of data that can be both structured and unstructured. These enormous volumes of data overwhelm the digital world every second. However, it is not the amount of data that is important. What we can do with the data matters: Big data analytics can provide insights that lead to better decisions and strategic moves.

The emergence of cloud computing made it easier to provide the best of technology in the most cost-effective packages. Cloud computing has reduced costs and made a wide array of applications available to companies of all sizes: small, mid-sized, big, and giant corporations.

2. Google Cloud Platform (GCP): Service Account

In classwork, students use various enterprise services of Google Cloud Platform (GCP). Cybersecurity is one of the top priority concerns when using cloud services to run applications. Creating and running Natural Language Processing (NLP) applications in GCP require the user to set up a service account that can be used in GCP's sophisticated authentication system.

IMPORTANT NOTES:

--> All the documents posted on the Canvas page **GOOGLE CLOUD PLATFORM: GCP for Deep Learning – TF2** should be used for HW 1.

--> All the documents posted on the Canvas page **GOOGLE CLOUD PLATFORM: GCP for Natural Language Processing (NLP)** should be used for HW 1.

--> All the **class assignments**, including the **midterm** and the **final project**, should be done using the GCP's services.

3. Teamwork on HW 3

All the members of a group should meet, discuss, learn, share, and work with each other on this assignment.

However, **each student** is **responsible** for **writing his/her report by himself/herself**.

Each student submits his/her report, not the group report or any other student's report.

4. PART I: Midterm Assessment Information (5 Points)

Answer the following questions:

1. How many sections (or parts) are there for the midterm assessment?
2. Which sections are take-home assignments that the student will work on them at home?
3. When will MIDTERM ASSESSMENT: PART I & II be assigned?
4. When will MIDTERM ASSESSMENT: PART I & II be due?
5. Which sections will the student take in-person in class?
6. When will the student take MIDTERM ASSESSMENT: PART III in-person in class?

5. PART II: Access and Read Codelab Tutorials on Dialogflow CX (15 Points)

TO-DO

- Access and read the tutorials on GCP: Dialogflow CX to build a virtual retail agent
 - At this link
 - <https://codelabs.developers.google.com/codelabs/dialogflow-cx-retail-agent#0>

6. PART III: Develop Conversational AI System for G-Records (70 Points)

TO-DO #1

- Following the steps discussed in the tutorial, create a new virtual retail agent for G-Records.
- Next, set up the environment by creating a new project for the virtual retail agent.

IMPORTANT NOTES:

--> *If the student has already set up a project for Dialogflow CX and wants to use it for HW 3, he/she can skip this step (set up the environment)*

--> *The only thing he/she needs to do is create a new virtual agent.*

IMPORTANT NOTES:

--> *For the following tasks, the student should take a screenshot of each step of a task and use the screenshots for illustration in the report.*

--> *For each TO-DO task, the student **only needs to take screenshots of the steps** of a process **once**. For example, the student needs to add three dialog flows. The student only needs to capture the screenshots of the steps of the process to add the first dialog flow.*

TO-DO #2

- Next, complete the steps to add the flows to the conversational AI system.
- After completing all the steps, capture the screenshot that shows all the dialog flows that have been created.

IMPORTANT NOTES:

--) In addition to the final screenshot that shows all the flows that have been created, the student should take a screenshot of each step of the process to create flows and use the screenshots for illustration in the report.

TO-DO #3

- Next, complete the steps to define entity types and entities for the conversational AI system.
 - Use MS Word or PowerPoint to create diagrams that contain the figures representing the entities with their entity type.
- After completing all the steps, capture the screenshot that shows all the entities and their entity types that have been created.

IMPORTANT NOTES:

--) In addition to the final screenshot that shows all the flows that have been created, the student should take a screenshot of each step of the process to define entities and entity types and use the screenshots for illustration in the report.

TO-DO #4

- Finally, complete the steps to add the intents for the conversation AI system.
- After completing all the steps, capture the screenshot that shows the list of all intents that have been added for the system.

IMPORTANT NOTES:

--) In addition to the final screenshot that shows all the flows that have been created, the student should take a screenshot of each step of the process to add the intents and use the screenshots for illustration in the report.

TO-DO #5

- Write a report for each above task (TO-DO 1 – 4) with details about what has been done at each step, illustrated with the screenshots taken while working on each task.

SUBMISSION REQUIREMENTS PART II #1:

--) Submit the report, including the details of each step of the process of each task, that are illustrated with screenshots.

7. PART IV: Teamwork Evaluation (10 Points)

Provide the information about your group activities by answering the following questions:

7. What group do you belong to? (Provide the group number)
8. Who are the members of your group?
9. Have the members organized any meeting (ONLINE or IN-PERSON) to see each other?
10. If YES to #3, which members, including the student himself/herself, showed up in the meeting?
11. Have the members worked with each other on any class assignments?
12. If YES to #5, do all the members make good efforts to actively participate in the group work?
13. If NO to #5, do you have any opinions to share about the group?

8. HOWTO Submit

The student is required to submit all the sections, i.e., submission requirements, in a Microsoft Word document that is sent to the instructor (Thuan.Nguyen@unt.edu) as an attachment to a UNT email.

The subject of the email must be:

- “[ADTA 5750: Assignment 3 – Submission.](#)”

Due date & time: 11:00 PM – Wednesday 10/09/2024