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August 15th, 2023.

C951 Introduction to Artificial Intelligence, Task 1.

Introduction.

As of August 15th, 2023, Western Governors University presents the introduction to a performance assessment as the following:

“This course has introduced you to a variety of artificial intelligence (AI) concepts, including chatbots. Chatbots are also known as conversational agents, talkbots, chatterbots, bots, instant message (IM) bots, interactive agents, or artificial conversational entities. Chatbots converse with humans using auditory or textual methods. These chatbots are often designed to convincingly simulate how a human would behave as a conversational partner. Chatbots alleviate the call volume of call centers by providing support to customers, provide assistance to shoppers by recommending products, help locate the best place to buy your favorite dish or order food, talk with you about a specific topic, or help you acquire information.

In this task, you will use the Pandorabot environment to create a conversational agent for the given scenario. Your chatbot will interact with students who are about to graduate. You will document the development of the chatbot and investigate the best calibration approaches and AI optimization methods that support the chatbot in having the required functionalities in the most efficient way.“ (WGU, *NIP2 — NIP2 TASK 1: CHATBOT*).

Scenario.

As of August 15th, 2023, Western Governors University presents the scenario applicable to the introduction via a performance assessment as the following:

“You are a career advisor working for a university that offers many degrees, including a degree in computer science. You know that there is a vast range of computing jobs and that students who are about to graduate are generally aware of their disciplinary preferences and personal strengths. The enrollment of computer science students at your university has been increasing and you can no longer meet with each of them individually to give career guidance. During a meeting of career advisors, your manager suggests that you develop a chatbot that may reduce your workload and interact with students to help them identify jobs in computing fields for which they are qualified.

You have been asked to identify five job types that require an undergraduate degree in computer science and to construct a chatbot in the Pandorabot environment. The chatbot will interact with individual students, help them identify their strengths and preferences, and help them decide which career options to consider.” (WGU, *NIP2 — NIP2 TASK 1: CHATBOT*).

A. Explanation of Chatbot Functionalities.

The assessment details a real-life example of designing a chatbot to attempt workload reduction. The chatbot is to interact with students and help them identify jobs in computing fields, relevant to the computer science degree. The functionalities of the chatbot designed, ‘careerbot’, performs a five-question survey on simple preferences/strengths a student may possess. Once a student identifies a preference/strength, the bot makes a suggestion. If none are identified, the bot starts again.

The chatbot, via Pandorabots development, introduces itself stating it is the universities career assistant for the computer science department. Beginning the questionnaire, the student is asked five questions based on preferences/strengths to identify a career that requires those preferences/strengths along with a degree in computer science. If no job is identified, meaning the user answers ‘NO’ to all five questions, the bot asks the questions again. After a job is identified, a link is provided for more information about the job.

B. Computing Job Types.

The chatbot identifies five computing job types based on interaction of preferences/strengths. The five computing job types are as follows:

* Software developer.
* Computer systems analyst.
* Database administrator.
* Hardware engineer.
* Network administrator.

Each of the listed jobs require preferences/strengths distinct to themselves. Software developer requires the preference of coding computer programs. A computer systems analyst must care to organize or improve the organization of computer systems within a business. A database administrator must administer/manage data and databases for an organization. A hardware engineer must uniquely design processors, memory, and/or circuits. Last, but not least, a network administrator must network an organizations computer system via local area network (LAN).

C. Chatbot Code Files

See the .AIML files:

* softwaredeveloper.aiml
* computersystemsanalyst.aiml
* databaseadministrator.aiml
* hardwareengineer.aiml
* networkadministrator.aiml

D. Chatbot Training Cases.

Chatbot training occurred through incremental development. Through development, 'careerbot', was designed to work precisely for the scenario provided. First, upon starting the bot with a single text input, the bot stated, “I’m not sure what you mean”, introducing a button-only proposal. After giving the keyword to start, the bot has developed to introduce itself and then present buttons to progress through the questionnaire. The following resulted in the bot being button only for every category until the user reaches the presentation of a job via a link for more information provided as the final destination. Alternatively, any input that was not via postback, or was not the keyword to start the bot, informed the user it was unsure what the user was asking. Development reassured in the course textbook by, “the more intelligent the system, the more negative the consequences” (Russell et al., 2020.)

E. Installation Manual.

The following demonstrates how to use ‘careerbot’ from a local machine with internet access. Please see the following instruction manual.

1. In a browser, navigate to pandorabots.com and login.
2. Once logged-in, select “Go To Dash”, else navigate to: [home.pandorabots.com/dash/graph](http://home.pandorabots.com/dash/graph)
3. Select “DIRECTORY”, else navigate to: [home.pandorabots.com/dash/bot-directory](http://home.pandorabots.com/dash/bot-directory)
4. In the search bar, search for “careerbot C951, #010958511”, containing description “careerbot for career suggestion”.
5. Select the bot.
6. Open the bot widget presented on the screen.
7. In the message box, type “start”.

F. Chatbot Environment.

The chatbot environment, pandorabots.com, was used to develop the ‘careerbot’. The development environment is easy to use and great for first-time developers. Setting up the bot for the performance assessment took minimal time. With that, cooperation with the setup of the environment was simple. Nothing itself is “perfect” per se. A weakness is self-limitation; The paid version seems more beneficial. Many tools presented in the paid version could help educate developers even further, even if that means not releasing the entire product for free.

G. Monitoring and Maintaining.

The chatbot will be monitored by its interactions/sessions seen over the past thirty days. Pandorabots.com provides a general dashboard for tracking such. Should interactions go as expected the improvements/maintenance hides, by additive inverse, should interactions not go as expected, thorough monitoring then followed by reproduction of an interaction shall demonstrate what maintenance is needed. Otherwise, as stated previously in section D, “the more intelligent the system, the more negative the consequences” (Russell et al., 2020.) again by additive inverse, the less intelligent the system, the less negative the consequences then assuming less maintenance needed while monitoring may range.

H. Panopto Recording.

Please see the following:

<https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=a623d2b2-e44b-4761-8eca-aff6016dd0a3>

I. Sources.

Interview question: “Why do you want to be a software developer?” - indeed. (n.d.-a). https://www.indeed.com/career-advice/interviewing/why-do-you-want-to-be-software-developer

Network administrator job description [updated for 2023] - indeed. (n.d.-b). <https://www.indeed.com/hire/job-description/network-administrator>

Russell, S., & Norvig, P. (2020). 1.1.5 Beneficial machines. In *Artificial Intelligence, A Modern Approach* (4th ed., p. 5). essay, Pearson Education.

Sanker, D. (n.d.). *Three reasons to be a database administrator*. LinkedIn. <https://www.linkedin.com/pulse/three-reasons-database-administrator-dan-sanker>

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Western Governors University. (n.d.). *NIP2 — NIP2 TASK 1: CHATBOT*. WGU Performance Assessment, NIP2 — NIP2 TASK 1: CHATBOT. https://tasks.wgu.edu/student/010958511/course/24060007/task/2893/overview

J. Professional Communication.

Thank you for your time. All questions/comments/concerns are best posted through the evaluation, otherwise:

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