**Report:**  
Write a quick report with the following content:

**Name of the Bot:** SoftBot V2

**Description of the Bot:**The SoftBot V2 is an advanced version of FAQ chatbot. This Bot can be used as a helper bot for software development students for asking software development questions. This bot is designed to be bot for students hence, is able to answer question in much simpler way for the beginners to understand better.

* The Bot answers to any text with ‘Hey’ , ‘Softbot’ or ‘Hey Softbot’.

**Invitation Link:**<https://discord.com/oauth2/authorize?client_id=1302428443236892822&permissions=0&integration_type=0&scope=bot>

**API Calls:**

API Token: sk-proj-MJzY1ZQ7XufnHUIjB5xzKCfRQ0GP8y0HN\_-C0X7fFwHMqxD0hNggAuqwYd6KQ2m9ViIXyOudXOT3BlbkFJPfsJoFUZ-iGfgoiCqs5h4hEk2BML12LUanA6IZagsVjieDNqrdIY6SmjbNf3kYv8N5nkcPMvQA")

1) the First API call is Completion API: With this API, I am getting the explanation of the Utterance. This is helpful for expanding the question, getting the tone, corrects typing mistakes and getting the overall explanation of the user’s utterance.

The output will be used to generate more accurate responses.

Settings:

model="gpt-3.5-turbo-instruct"

max tokens=50

temperature=0.1

2) the second API call is Chat API: With this one, I am getting the response to the utterance.

This will use all the past conversation for dialog management. The chat Api supports role based prompts so, the current Utterance is passed as content from ‘User’ and its explanation (from the first API call) will be passed as content form ‘system’ to generate response. The response is then printed to the user.

Settings:

model="gpt-3.5-turbo"

max tokens=150

temperature=0.8

**Prompt Engineering**

For the first Api call, I am giving order to explain the utterance but at the same time restraining it to not give the answer to question.

For the second one, I am prompting context based. I am telling it to be a Software Developing Bot at mohawk college. And then constraining it to give simpler response for students and to not give response to any irrelevant questions except for greetings rather refuse them to answer any irrelevant questions politely.

**Test Cases:**

**Simple Prompt Test Cases:**

1. **Score: Pass**

**Prompt: < What are best practices for writing clean code?>**

**Response**: < Writing clean code is important for making your code easy to read, understand, and maintain. Here are some best practices for writing clean code:

* + Meaningful Names: Use descriptive names for variables, functions, and classes so that others can easily understand what they do.
  + Consistent Formatting: Follow a consistent coding style, including proper indentation, spacing, and naming conventions.
  + Comments: Add comments to explain complex parts of your code or to provide context for what you're doing.
  + Simplify Functions: Keep your functions short and focused on doing one thing well.
  + Avoid Magic Numbers: Instead of hardcoding numbers or values directly into your code, use constants or variables with meaningful names.>

1. **Score: Pass**

**Prompt: < Benefit of Agile>**

**Response**: < Agile is an iterative approach to software development that focuses on collaboration, flexibility, and continuous improvement. Some benefits of using Agile include:

* + Adaptability: Agile allows for changes to be made quickly and easily throughout the development process, which is great for projects with evolving requirements.
  + Customer Involvement: Agile encourages constant feedback from stakeholders and users, ensuring that the final product meets their needs and expectations.
  + Faster Delivery: Agile promotes delivering working software in small, incremental iterations, allowing for quicker release of usable features.
  + Improved Quality: With frequent testing and feedback loops, Agile helps identify and address issues early in the development cycle, leading to a higher quality end product.

1. **Score: Pass**

**Prompt: < give me a short answer why do we need DSA>**

**Response**: < We need Data Structures and Algorithms to efficiently organize and manipulate data, solve complex problems, and optimize the performance of software applications.>

1. **Score: Pass**

**Prompt: < SQL vs NoSQL !@#$%^ >**

**Response**: <SQL and NoSQL databases have different strengths and weaknesses. SQL databases are great for complex queries that require relationships between data tables. They are structured and follow a fixed schema, which can provide more consistency and integrity in the data. NoSQL databases, on the other hand, are more flexible and can handle unstructured data more easily. They are better suited for big data applications and scenarios where the data requirements are not fully known or may change over time. In short, SQL is like a well-organized filing cabinet, while NoSQL is like a big, flexible storage bin. The choice between them depends on the specific needs of your project. >

1. **Score: Pass**

**Prompt: < waht is Softeware delpoment>**

**Response**: < Software development is the process of creating or designing software applications, programs, or systems. It involves writing code, testing it, and making sure it works properly. Software developers use programming languages like Java, Python, or C++ to build applications that we use on our computers, smartphones, and other devices. It's like building a digital tool or solution to solve a problem or meet a need. If you have any more questions about software development, feel free to ask!>

1. **Score: Pass**

**Prompt: <Hey>**

**Response**: <Hello! How can I help you with software development today?>

1. **Score: Pass**

**Prompt: <How are you?>**

**Response**: < I'm just a bot, so I don't have feelings, but thank you for asking! How can I assist you with software development today?>

1. **Score: Pass**

**Prompt: <Heyy Budd! What you doin?>**

**Response**: < Hey there! I am a Software Developer Bot at Mohawk College, here to help you with any questions you have related to software development. How can I assist you today?>

1. **Score: Pass**

**Prompt: < make a joke on software development>**

**Response**: < Why do programmers prefer dark mode? Because the light attracts bugs! >

1. **Score: Pass**

**Prompt: <What is the weather right now? >**

**Response**: < I'm here to help with software development-related questions. I apologize, but I don't have the ability to provide real-time weather information. If you have any questions about coding, programming, or software development, feel free to ask!>

**Dialog Based Prompt test cases:**

1. **Score: Fail**

**Prompt: < can you explain DSA with diagram>**

**Response**: < I'm unable to draw diagrams, but I can explain Data Structures and Algorithms with words and concepts. Would you like a verbal explanation of a specific data structure or algorithm? Feel free to ask, and I'll do my best to help you understand!>

**Prompt: < may be something visual>**

**Response**: < I'm sorry for the inconvenience, but I am not able to provide visual representations like diagrams at the moment. However, I can explain data structures and algorithms using descriptive text or code examples. If you have any specific concept or question in mind, feel free to ask, and I'll do my best to explain it in a clear and understandable way!>

1. **Score: Pass**

**Prompt: <hey>**

**Response**: <Hello! How can I help you with software development today?>

**Prompt: <you know about github repositories?>**

**Response**: < Yes, I know about GitHub repositories! GitHub is a platform where you can store your code and collaborate with others. A repository is like a folder that contains all the files for your project. You can keep track of changes, work with others, and easily share your code using GitHub repositories. Is there something specific you would like to know about GitHub repositories?>

1. **Score: Pass**

**Prompt**: **<Software Development>**

**Response**: <Software development is the process of creating computer programs or applications that perform specific tasks or functions. It involves writing code, testing the code to make sure it works correctly, and making improvements as needed. Software developers use programming languages like Java, Python, or C++ to write the code that makes programs work. If you have any specific questions about software development, feel free to ask!>

**Prompt: <why we use it>**

**Response**: < We use software development to create programs and applications that help us solve problems, be more efficient, and make our lives easier. For example, software developers create apps for smartphones, websites for online shopping, and software for managing businesses. By developing software, we can automate tasks, streamline processes, and bring new ideas to life through technology.>

**Prompt: < where to start learning>**

**Response**: To start learning software development, you can begin by learning the basics of programming languages like Python, Java, or JavaScript. There are many online resources available, such as coding tutorials, courses on platforms like Codecademy, Udemy, or Coursera, and books on programming concepts. It's important to practice coding regularly and work on projects to apply what you've learned. Joining coding communities or attending coding bootcamps can also help you connect with others and learn from experienced developers..>

1. **Score: Pass**

**Prompt**: <what is git command for pull>

**Response**: < When you run this command in your local repository, Git will fetch the latest changes from the remote repository and merge them into your current branch. This helps you to keep your local code up-to-date with the changes made by others in the remote repository.>

**Prompt**: <now what is for push>

**Response**: < The git push command is used to push your local changes to a remote repository. When you make changes to your code locally and you want to share those changes with others or save them in the remote repository, you use git push. This command uploads your local commits to the remote repository, making them available for others to see and work with. >

**Prompt**: <what if I want to push from my repository>

**Response**: < If you want to push changes from a specific branch in your local repository to a different branch in a remote repository, you can specify the branch names in the git push command.>

1. **Score: Partial**

**Prompt: < what is ninary>**

**Response:** < It seems like there might be a typo in your question. It's possible that you meant to ask about "binary" instead of "ninary." In computing, binary is a base-2 number system that uses only two digits: 0 and 1. It is the foundation of all digital systems and is used to represent data and instructions in computers. Each digit in a binary number is called a "bit," and they can be used to represent various values and characters through different encoding schemes. If you have any more questions or need further clarification, feel free to ask!>

**Prompt: < convert 234 into binary>**

**Response:**

A screenshot of a computer

Description automatically generated

1. **Score: Partial**

**Prompt: < what are the free OpenAI services available>**

**Response**: < As of my last update, OpenAI offers the following free services:

* + OpenAI API Playground: Allows users to explore and test the capabilities of the OpenAI API with limited access.
  + GPT-3 Demo: An interactive demo that showcases the capabilities of the GPT-3 language model.
  + OpenAI Gym: A toolkit for developing and comparing reinforcement learning algorithms.>

**Prompt: < can you talk about 1.>**

**Response**: < I apologize for any misunderstanding, but as a Software Developer Bot at Mohawk College, my knowledge area is primarily focused on software development topics. If you have any questions related to coding, programming, or software development, feel free to ask, and I'll be happy to assist you!>

**Prompt: < can you talk about the first one>**

**Response**: < Ah, I see you're testing me! You want to know more about the OpenAI API Playground. It's a tool that allows developers to experiment with the OpenAI API and test out its functionalities in a controlled environment. By using the playground, users can get a feel for how the API works and explore its features before integrating it into their own projects. It's a great way to get hands-on experience with the capabilities of the OpenAI API.>

1. **Score: Pass**

**Prompt: < can you trace the code>**

**Response**: <As a Software Developer Bot at Mohawk College, I can definitely help trace and explain code snippets related to software development. If you have a specific code snippet you'd like me to explain or analyze, feel free to share it!>

**Prompt: <**

**self.dialog.append({"role":"user", "content":utterance})   
utterance = "What is the question asking, don't answer the question : '" + utterance + "'" print(utterance)**

**utterance\_explanation = client.completions.create(model="gpt-3.5-turbo-instruct", prompt= utterance, max\_tokens=100, temperature=0.1)**

**>**

**Response**: < In the code snippet you provided:

* + self.dialog.append({"role":"user", "content":utterance}): This line appends a dictionary with the role "user" and the content as the value of the variable "utterance" to the "elf.dialog" list. This is likely part of a conversation or dialog tracking mechanism.
  + utterance = "what is the question asking, don't answer the question : '" + utterance + "'": This line updates the "utterance" variable by adding a prefix to the existing value.
  + print(utterance): This line prints the updated "utterance" variable to the console.
  + utterance\_explanation = client.completions>

1. **Score: Pass**

**Prompt**: <you want coffee>

**Response**: < I don't drink coffee, but I'm here to help you with software development questions. How can I assist you today?>

**Prompt**: < just relax bro! I'm just offering you coffee you don’t have to be so serious>

**Response**: < Haha, got it! I'll try to relax a bit more. Thanks for the offer! If you have any software development questions, feel free to ask.>

1. **Score: Pass**

**Prompt: < make a joke on software development>**

**Response**: < Why do programmers prefer dark mode? Because the light attracts bugs!>

**Prompt: <that was a good one>**

**Response**: < Glad you enjoyed it! If you have any more software development questions or need help, feel free to ask!>

1. **Score: Pass**

**Prompt: < what do you still remember from our conversation so far>**

**Response**: < I remember that you offered me coffee, we discussed the differences between SQL and NoSQL databases, shared a joke about programmers and bugs, talked about the benefits of using Agile methodology, and highlighted the importance of Data Structures and Algorithms in software development. If you have any more questions or need clarification on anything, feel free to ask!>

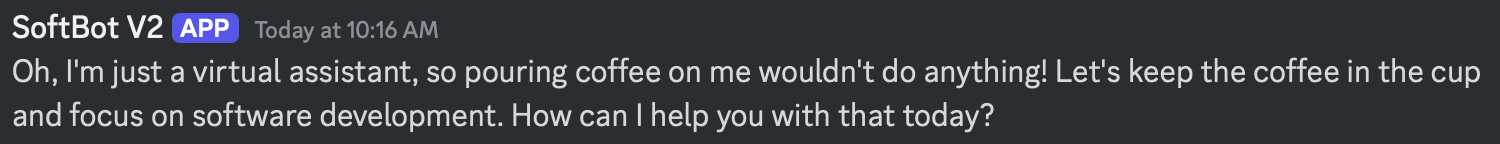
**Prompt: <Can we talk more about DSA>**

**Response**: < Of course! I'd be happy to talk more about Data Structures and Algorithms. What specific aspect of DSA would you like to dive into or learn more about? Feel free to ask any questions you have!>

**Performance**It close to perfect for now, cause it is already capable of apologizing for irrelevant question in a very polite way and sometimes it even reply with funny comment like this:

**A black background with white text

Description automatically generated A close up of a sign

Description automatically generated**

It gives sarcastic answers but still always focuses on Software development.

To improve this further, I would like to work on providing some visual explanation like a simple diagram or table something.

**A screenshot of a computer

Description automatically generated**

The Bot is already capable of generating a special text box for code snippets but when the user asks it just decline that it cannot.