# CREATING A CHATBOT USING PYTHON

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PHASE 3: **DEVELOPMENT PART 1**

- The advent of bots in 1966 started with text bots like Eliza and it later evolved to voice-based bots during the 80’s. The simplest way of defining a bot would be a software that can have intelligent conversations with humans.

- Though there are various use cases for bots, one of the familiar examples is live chat platforms where users ask questions, which are met with appropriate responses by a chatbot. This is a quick way of resolving queries and providing timely customer service.
- Chatbot development involves creating a computer program that can engage in conversation with users. It's designed to understand and respond to user input, providing information, answering questions, or performing specific tasks.

## CHATBOT:

- Chatbot, we can define it as a computer program that impersonates human conversations in its natural format, which may include text (since the advent of bots) or spoken language uses artificial intelligence techniques such as Natural Language Processing (NLP) and audio analysis. One of the primary aspects of an AI-based bot is that it is dynamic.
- AI-based bots learn from the previous interactions and in retrospect, become more intelligent to handle conversations that are more complex.

## HOW DO THE CHATBOT FUNCTION?

- The main technology that lies behind chatbots is NLP and Machine Learning.
- When a question is presented to a chatbot, a series or complex algorithms process the received input, understand

what the user is asking, and based on that, determines the answer suitable to the question.

- ❖ Chatbots have to rely on the ability of the algorithms to detect the complexity of both text and spoken words. Some chatbots perform very well to the point it becomes difficult to differentiate whether the user is a machine or a human.
- ❖ However, handling complex conversations is a huge challenge; where there is a usage of various figures of speech, it may be difficult for machines to understand.

## CHATBOT DEVELOPMENT STEPS:

- ➢ **Define the Purpose:** Determine the purpose of your chatbot. What problem will it solve, and what tasks will it perform?
- ➢ **Choose a Platform:** Decide where your chatbot will be used. It could be on a website, messaging platforms (like Facebook Messenger), or a custom app.
- ➢ **Select a Technology Stack:** Choose the technology stack, including the programming language (like Python, JavaScript, or Ruby) and any frameworks or libraries you'll need.
- ➢ **Design the Conversation Flow:** Plan how the chatbot will interact with users. Create a dialogue tree or flowchart to map out responses and actions.

Chatbots now can be used in almost all sectors, thanks to their outstanding features. Nevertheless, we have seen some

industries that benefit more from this chatbot development trend:

## E-Commerce:

- E-commerce may be the industry that sees the most use of chatbots. They help businesses in:

- Customer onboarding – educate users to utilize your e-commerce app.

- Customer support – searching for products or other information.

- Generate leads- engage and encourage customers to provide their email addresses.

- Upsell – giving personalized recommendations or suggesting similar products.

- Improve the buying experience – completing orders, and supporting the refund process.
- Collect customer feedback about your services.
- Track the status of a customer's order through social media like Facebook and Messenger.

## DEVELOPING A CHATBOT:

```
from chatterbot import ChatBot
from chatterbot.trainers import ChatterBotCorpusTrainer

# Create a chatbot instance
chatbot = ChatBot('My Chatbot')

# Create a new trainer for the chatbot
trainer = ChatterBotCorpusTrainer(chatbot)

# Train the chatbot using the English corpus
trainer.train("chatterbot.corpus.english")
```

```
# Handle user input and get the bot's response
while True:
    user_input = input("User: ")
    bot_response = chatbot.get_response(user_input)
    print("Chatbot: ", bot_response)
```

**Output:**

User: Hi

Chatbot:  Hello

User: How are you?

Chatbot:  I am doing great, thank you.

User: What's the weather like today?

Chatbot:  I am sorry, I don't have the capability to check the weather.

User: Tell me a joke

Chatbot:  Why don't scientists trust atoms? Because they make up everything!

## STEPS IN CHATBOT DEVELOPMENT:

### Step 1: Define goals:

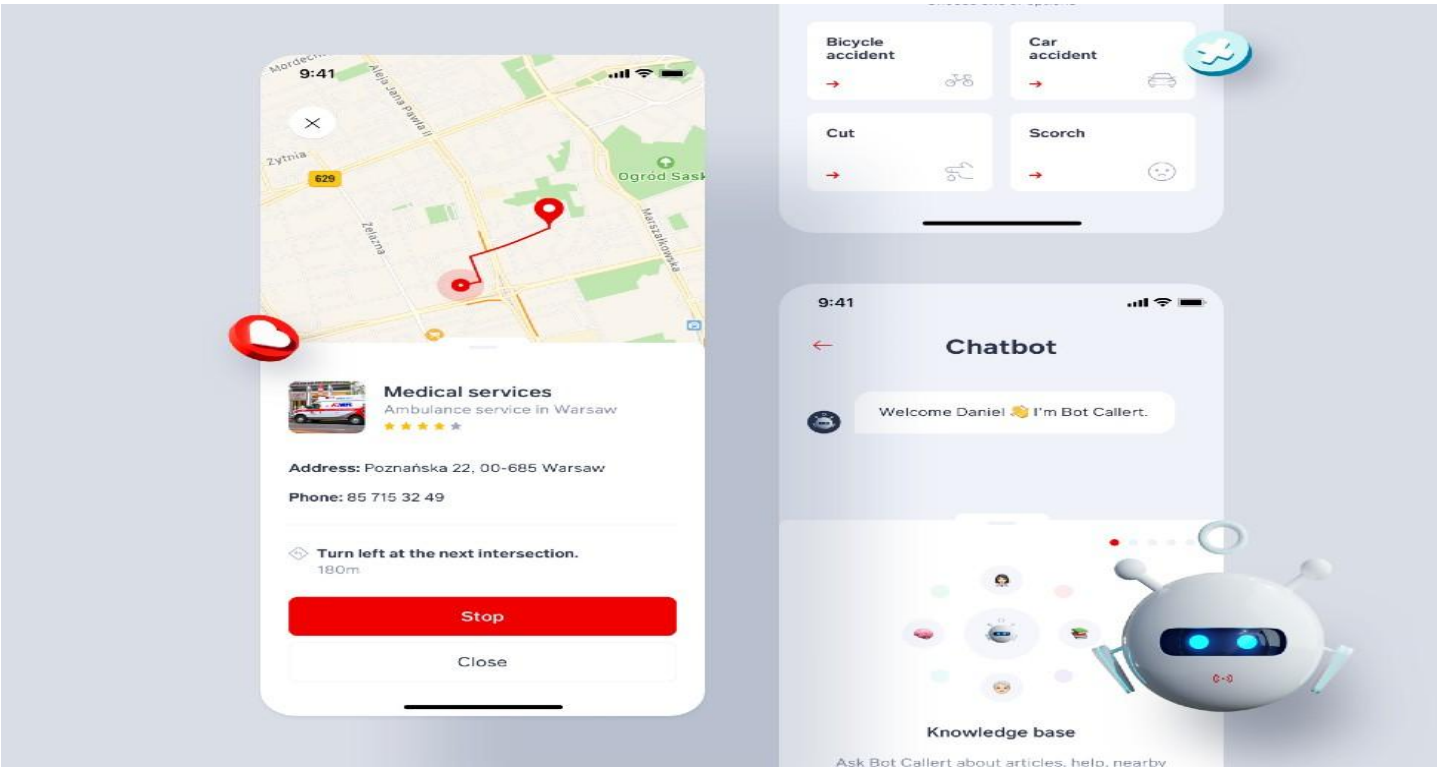
- Before we invest in building your chatbot, the first question is whether it is really essential to our business. Having a chatbot just because it is trendy should not be the reason to develop one, and it may just end in disaster.
- Investigate your business operation to see where a chatbot may fit in and be useful. If there are too many questions from customers and no staff to handle them, then chatbot development might be the solution. If you want to enhance the buying journey by giving people personalized recommendations, then consider a chatbot.
- Next, define the chatbot's goal and metrics to measure its success. For the goal, SMART is applicable, we can have a goal such as "*the chatbot should automate 20% of customer* .

## Step 2. Select a Communication Channel:

- Chatbots are integrable on multiple platforms, from your website to social media channels such as Facebook Messenger, Skype, etc. What to do is check which channels you may elevate the customer experience and convert them.

- Depending on your business situation, you may go for a multi-channel approach to maximize the benefits of a chatbot. The only difference is that you should ideally employ the same technology stack across all platforms.

## Step 3. Design Conversational Language & Architecture:




- we can design the chatbot's dialogue based on your business requirements and the workload of the customer service staff. Customers can get quick support from a

simple chatbot that uses FAQ-styled messages. As a result, you must build a conversational style that addresses all possible inquiries from your consumers.

- we should develop a storyboard and dialogue flow for the bot in addition to simple messages. This entails creating different variations of a message that convey the same meaning. This allows the bot to converse smoothly even when it has to say something repeatedly.
- More advanced chatbots that offer human-like conversations, on the other hand, require a more sophisticated conversational architecture. Machine learning technology is also used by these chatbots to improve their interactions.

## Step 4. Choose Integration Apps :

- To retrieve relevant responses, a chatbot architecture must comprise a knowledge base or a response center. You can either create a dedicated knowledge base for this reason. Alternatively, you can integrate any current apps or services that have all of the information that your customers may require.

- Below are some apps to consider for integration with your chatbot:
- CRM ( e.g., Hubspot, Zoho, Salesforce, etc.)
- Calendar (Google Calendar, etc.)
- Payment systems (e.g., Stripe, PayPal, etc.)
- Maps (Google Maps, Apple Maps, etc.)
- Cloud storage tools (e.g., Dropbox, Google Drive, OneDrive, etc.)
- Any other business software that your company is using.

## Step 5. Decide The Chatbot Development Platform Or Chatbot Development Company:

❖ To consult and construct a prototype, you can use a chatbot builder or hire a chatbot development company. Both methods are ideal, and which one we choose is dependent on the type of chatbot we want, our business requirements, money, and time.

- If we prefer a chatbot platform, you can choose from the options listed above. The platforms mentioned above are trustworthy and enable you to create a chatbot using cutting-edge technologies.
- For chatbots with more complex functions, it is recommended that you seek out professionals. A chatbot development company may offer a more comprehensive solution, including consultation, design, programming, deployment, and maintenance.

## Step 6. Create Your Chatbot Personal & Implement a Dialogue Flow:

- Developing a personal  chatbot could be the first step in designing a quality dialogue. When designing a flow script, giving your bot a name and a tone of voice is a vital aspect of the design process.

- Next, we need to create classifiers to implement the whole dialogue flow. This will map a structure that will allow the chatbot program to decipher an incoming inquiry, examine the context, retrieve an answer, and provide an appropriate response based on the conversational architecture.

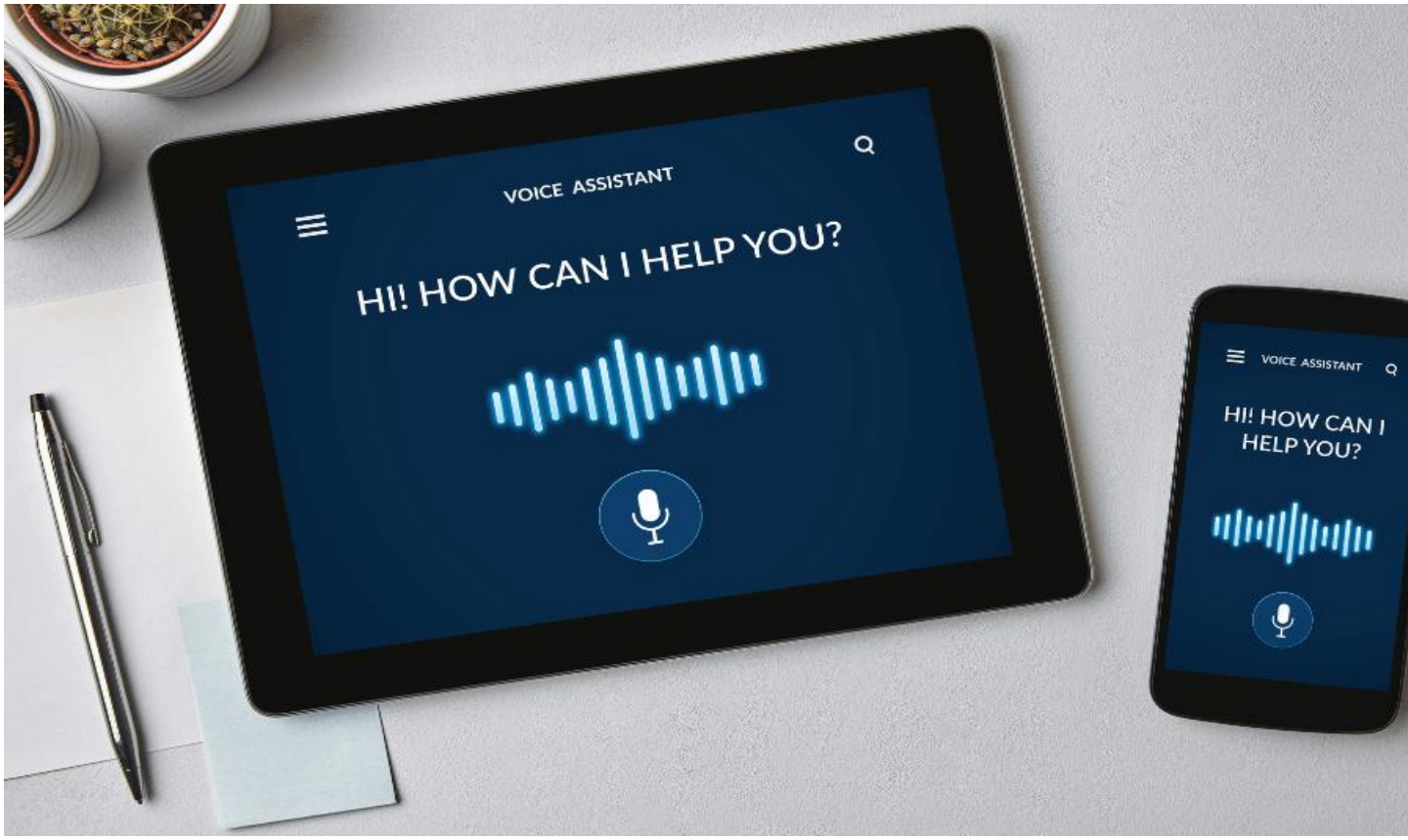
## Step 7. Test and Deploy:

- There are several methods for testing your bot before it is deployed and launched. We may manually test it by installing it on a platform such as your website and then conversing with the chatbot. This lets us evaluate whether the bot behaved as expected.
- The following steps are usability testing and gathering user feedback. Once we're happy with the experience, start testing the chatbot with a small sample of customers and gradually scale up until the product is available to everyone.

- After deploying the chatbot, monitor the conversations, collect data, make logs, analyze the data, and continue to update the bot for better experiences.

## Chatbot Development Trends In 2023:

## Growth Of Voice-Assistants



- The number of voice chatbots is expected to exceed 8 billion by 2023, according to Juniper Research.
- Because chatbots can interpret human language and speak like humans, voice interactions have made a significant difference in how customers feel connected to businesses. Chatbots in 2023 will support a wide range of mobile devices, therefore organizations must create a voice-enabled chatbot.

## More Emotionally Intelligent Chatbots :

- The global emotional AI market is expected to develop at an 11.3% CAGR to $37.1 billion by 2026. Advanced face emotion recognition, eye-tracking technologies, and real-time video interaction analysis are now implemented into chatbots to improve their performance.
- Furthermore, progress is being made in building digital avatars that convey emotions, so that engaging with an AI chatbot may become indistinguishable. Sentiment analysis,

in which AI chatbots learn to recognize mood, tone, and attitudes and adapt their responses to give personalized communication, is one of the milestones that the AI chatbot industry aspires to achieve.

## Specialized chatbots:

- According to Gartner, AI chatbots aimed at certain industries will increase in number in 2023. businesses will increasingly seek chatbot companies that give answers to their industries and problems.
- Healthcare is one such industry where organizations would consider an AI chatbot provider company's specialized abilities and experience. During the pandemic, more than 1000 COVID-19-specific chatbots were available.

## BENEFITS OF CHATBOT DEVELOPMENT:

- **24/7 Availability**: Chatbots can provide around-the-clock customer support and assistance, ensuring that users can

get help or information at any time, even outside of regular business hours.

- **Cost Savings:** Chatbots can significantly reduce operational costs by automating tasks that would otherwise require human employees. They can handle a wide range of customer inquiries and support issues.
- **Efficiency:** Chatbots can quickly and efficiently respond to user queries, reducing wait times and improving the speed of service. This can lead to higher customer satisfaction.
- **Scalability:** Chatbots can handle multiple conversations simultaneously, making them highly scalable. As your user base grows, you can easily expand your chatbot's capabilities to meet the increased demand.
- **Consistency:** Chatbots provide consistent and accurate responses to user queries, eliminating human errors and ensuring that users receive the same information or assistance every time.
- **Personalization:** Advanced chat

## CONCLUSION:

chatbot development is a dynamic and valuable field with a wide range of applications across various industries. As technology and artificial intelligence continue to advance, chatbots are becoming increasingly sophisticated and capable.

While chatbot development holds great promise, it's crucial to remember that creating an effective chatbot requires careful planning, ongoing refinement, and attention to user needs. As technology continues to evolve, chatbots are likely to become even more integral in providing efficient and personalized services to users in various domain.