STAR LION COLLEGE OF ENGINEERING AND TECHNOLOGY

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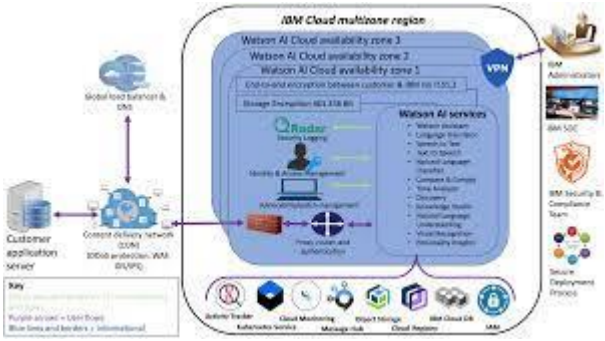
CREATE A CHATBOT IN PYTHON

Phase_5 Document Submission

PROJECT: Create A Chat bot In Python

IBM Cloud & Watson AI Services:

Watson is AI from IBM. Created to form your business more intelligent and every worker your best worker. Watson features a range of advanced APIs, specialized tooling, and Software as a Service application. This implies that Watson is made for complex use cases and designed to integrate with platforms that experts utilize in their daily work. Ensuring seamless access to the knowledge you would like to form the right decisions**.**



IBM Watson Services:

Watson Studio allows you to train, deploy, and manage your AI models, and prepare and an information during a single integrated environment.

Watson Knowledge Cat a log drives collaboration and transforms information and AI into a trusted enterprise resource through dynamic data policies and requirements.

Watson Assistant helps you construct chat bots and virtual assistants for a spread of channels including mobile devices, messaging platforms, and even robots.

Watson Discovery unlocks hidden value in information to get answers, monitor trends, and repair patterns with the world's most advanced cloud-native insight engine.

Watson IoT Platform helps to make and maintain a really efficient IoT infrastructure.

Watson Speech to Text (STT) helps convert audio/speech to text.

Watson Text to Speech (TTS) helps convert text to audio/speech.

Watson Language Translator helps translate between different languages.

Watson language Classifier helps you classify the natural languages getting used.

Watson's language Understanding helps you understand natural languages.

Watson Visual Recognition allows you to rapidly and precisely tag, classify, and train visual content using machine learning.

Watson Tone Anal zer helps you anal ze the tone of sound provide whether the person is angry, happy, or whether the music is pleasant or not.

Watson Personality Insights helps you gain insight into personality traits.

Data Refinery provides you with how to show Watson the language of your domain, with custom models that identify entities and relationships unique to your industry.

Watson Machine Learning empowers you to utilize your own data to make, train, and deploy machine learning and deep learning models.

Deep Learning helps you build deep learning models.

Watson Compare and Comply streamlines contract workflows to save lots of time and improve precision and disentangle contract governance.

Advantages Of Using IBM Watson

Watson gives you complete control of what is important to you a

It does not process structured data directly.

With the increase in the volume of data, there are still limited resources in place to cater to the needs.

Maintenance is a big question in the case of IBM Watson technology.

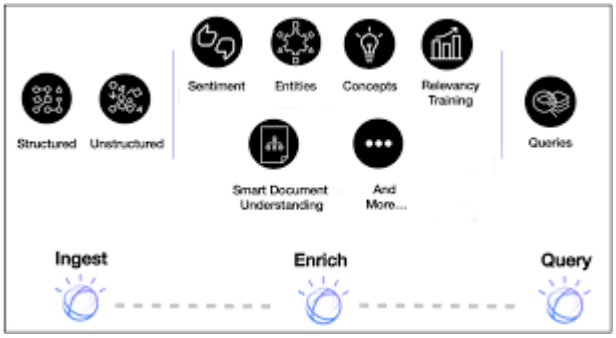
Barriers To Adoption Of IBM Watson

High Switching Cost.

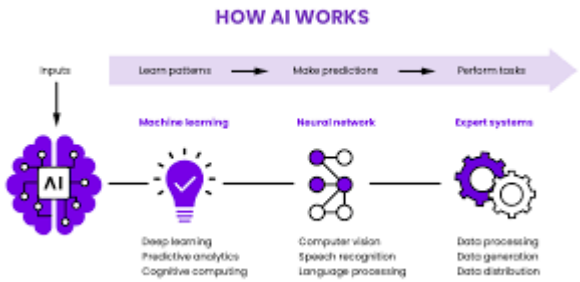
It takes time and effort to integrate IBM Watson and its services into a company.

IBM Watson is targeted towards bigger organizations that can afford Watson.

It takes time and effort to teach Watson in order to use it to its full potential.



Artificial Intelligence and its subset Machine Learning are two technologies that are poised to change our lives at a much deeper level than we can imagine currently. According to Sundar Pichai, the CEO of Google, AI will transform how we lead our lives and revamp many industries, including healthcare, education, and manufacturing. And considering how AI and ML are being used to introduce revolutionary changes in the field of medicine, space exploration, etc., the probability of AI and ML helping humanity advance as a species is not far-fetched.

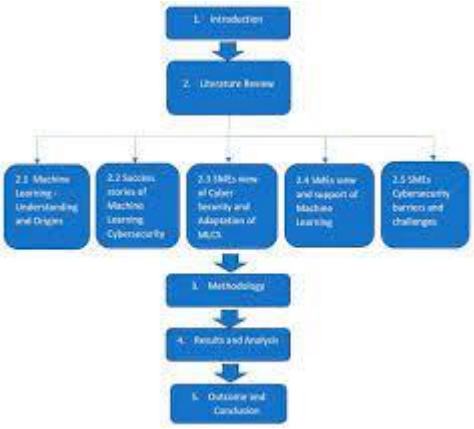


2. AI and ML Injected Cybersecurity:

As machines get more and more intricate, cybersecurity is a field that will see increased relevance in 2022. It’s not surprising that as technology grows, hackers devise newer and more dangerous ways to attack individuals and organizations. And the internet is a popular means of launching such attacks. Apart from data theft and compromised privacy, the danger of entire institutions collapsing due to a cyber attack is always looming.

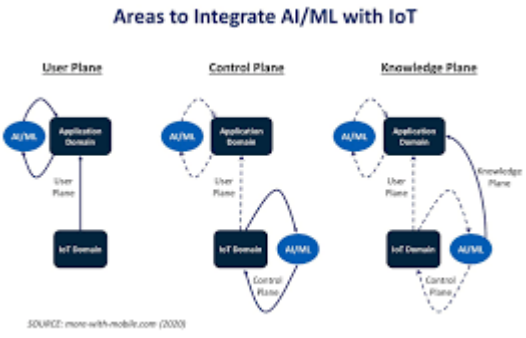
Thankfully, Artificial Intelligence & Machine Learning enhanced cybersecurity is here to fortify cyber protection. Since AI and ML depend on learning from their environment, AI-embedded online security measures will revamp data protection in the virtual world. It

is not far when companies will use sophisticated AI algorithms to detect and ana cyber threats, create their directories and devise measures to protect data against them.



3. Io T with AI and ML:

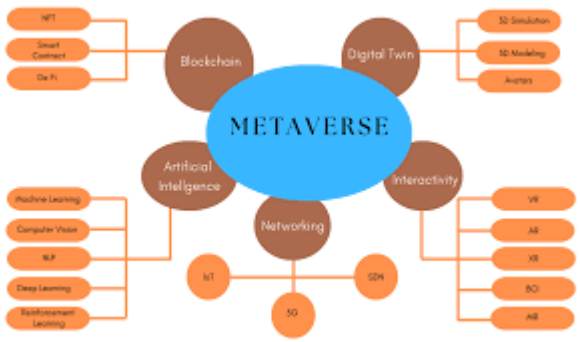
Io T or the Internet of Things refers to the billions of internet-connected devices continuously exchanging information via the web. Io T can consist of devices ranging from a smart refrigerator to a highly sophisticated robot connected to the web. IoT is already slated to be a defining technology in 2022. Experts predict that as IoT devices are enriched with the advancements of AI, their ability to ana, transfer, and exchange complex information will increase by leaps and bounds.



4. Met averse and Its Incorporation of AI:

Met averse, or the virtual world, is a long-standing concept that aims to replicate the real world on the internet. The term “Met averse” traces its origins in the 1992 science fiction novel “Snow Crash” by Neal Stephenson. And though it came out of a sci-fi novel, the me t averse is close to becoming a reality today. Companies such as Meta (previously Facebook) and Microsoft have already defined their iterations of the met averse and claimed it to be the future of the internet.

2022 is a year when Artificial Intelligence and Machine Learning will see increased integration in many technologies. And the metaverse is no different. AI and ML will play a significant role in reproducing the details of the real-world much more accurately. Attributes like speech and vision will also see augmentations to incorporate them better in the virtual world.



5. Self Driving Vehicles and AI:

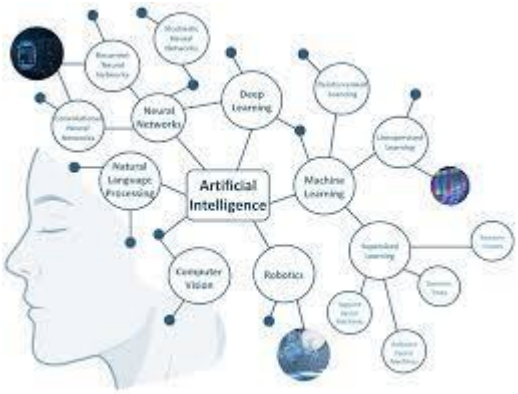
There is no doubting the fact that the future of driving is in automation. And companies like Tesla, the world's largest producer of electric cars, are already giving us a glimpse into the future of automated driving. A decade ago, self-driving cars were only limited to prototypes and lab experiments. Today, however, real-world demonstrations have ensured that self-driving vehicles will indeed become a norm soon. And AI and ML will play a notable role in accomplishing this.

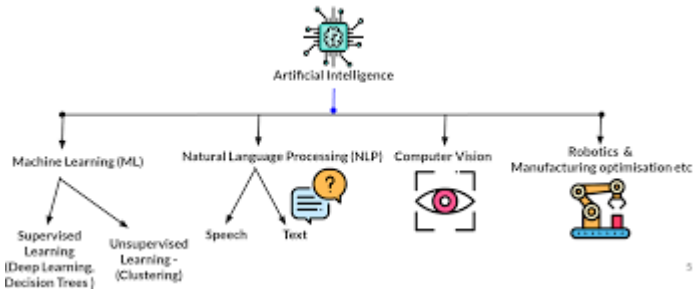
Companies will use AI and ML to create more advanced and consumer-centric algorithms for their self-driving vehicles. These algorithms will help vehicles detect anomalies and barriers faster, make driving on autopilot much safer, and decrease human dependence to a negligible amount.

6. NLP and AI/ML:

Natural Language Processing (NLP) is a subset of Artificial Intelligence that enables machines to understand and process human language. NLP analyses and translates human language, which is complex, vague, and less straightforward than machine language, and generates comprehensible output. With NLP, computers can perform tasks such as speech recognition, inter-language translation, keyword identification, and more. An example of NLP would be the voice assistants that ship with smartphones. Assistants like Alexa, Cortana, Google Assistant, Bixby, etc., use voice commands as inputs and generate outputs accordingly.

And although the chores they do are not very complicated, they do tell us what the future of NLP holds. 2022 will be a year when NLP will see some noteworthy developments. And AI and ML will be crucial for these developments. Machines embedded with AI and ML will understand human language much more seamlessly. They will deliver spot-on results for anything we speak or write. Also, they will develop heightened abilities for interpreting and predicting words without any explicit programming.





7. AI and Ethics:

Artificial Intelligence holds immense potential across several fields. Its applications in making our lives easier are countless and limitless. However, apprehensions about using AI and ML for unethical means such as warfare, terrorism, illegal pornography have made many consider its benefits. For instance, Deep fake, an AI-based technology that replaces an individual's face in an image or a video with an artificial one, is already the subject of many controversies. Criminals are using it to fabricate evidence, generate sexually sensitive content of their victims, and more.

Thus, AI, like every other technology, is subject to a list of moral principles that should not be transgressed under any circumstances. And as the definitions of AI-related ethics grow and new ones originate, 2022 will see a more pronounced and rigorous following of moral principles concerning developments in AI and ML.

Whether you're preparing for your first job interview or aiming to upskill in this ever-evolving tech landscape, Geeks for Geeks Courses are your key to success. We provide top-quality content at affordable prices, all geared towards accelerating your growth in a time-bound manner. Join the millions we've already empowered, and we're here to do the same for you.

Build a better chatbot:

Chat bots powered by IBM wat son Assistant can do much more than just chat – they offer quick, accurate answers across digital and voice channels, and are able to complete complex transactions by leveraging robotic process automation and backend integrations with business systems.

Wat son Assistant is underpinned by Large Language Models (LLMs) and comes with out-of-the-box natural language processing, which can address the messy nature of human communication and prevent conversations from reaching a frustrating dead-end.

Build bots faster

Create your first virtual assistant using IBM watsonx Assistant Actions

Actions are a new way to build conversational flows in watsonx Assistant to help your customers accomplish their goals. They make the build experience dramatically easier by consolidating elements such as intents, entities and slots into a single, intuitive build process within the user interface. Watch the video to learn how.

Take the first steps

Understand the key constructs used by wat son Assistant.

Prepare to build your first virtual assistant.

Get familiar with the in-product navigation and user interface.

Use templates to build conversation flows faster.

IBM® wat son™ Assistant, focused on using actions to build customer conversations, is designed to make it simple enough for anyone to build a virtual assistant. Building, testing, publishing, and anal zing your assistant can all now be done in one simple and intuitive interface.

New navigation provides a workflow for building, previewing, publishing, and anal zing your assistant.

Each assistant has a home page with a task list to help you get started.

Build conversations with actions, which represent the tasks you want your assistant to help your customers with. Each action contains a series of steps that represent individual exchanges with a customer.

A new way to publish lets you review and debug your work in a draft environment before going live to your customers.

Use a new suite of analytics to improve your assistant. Review which actions are being completed to see what your customers want help with, determine if your assistant understands and addresses customer needs, and decide how can you make your assistant better.

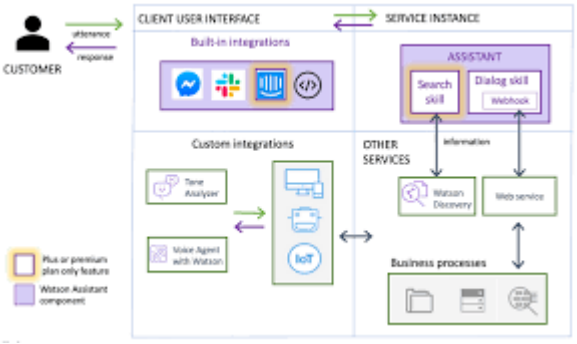
Explore our interactive demo site to learn how wat son Assistant can be used to build powerful, scalable experiences for your users.

For more information, see FAQs about wat son Assistant.

Visit Getting started with wat son Assistant for a tutorial series on building in wat son Assistant.

Switching between wat son Assistant and the classic experience

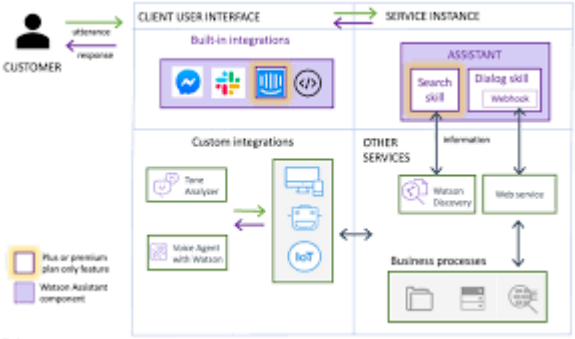
You can easily switch back and forth between wat son Assistant and the classic experience. However, wat son Assistant provides a simplified user interface, an improved deployment process, and access to the latest features. For more information, see Migrating to wat son Assistant. If you do need to switch, see Switching between wat son Assistant and the classic experience.



Using wat sonx Assistant

IBM® wat sonx™ Assistant can be deployed as a managed cloud service or can be installed on premises. This documentation applies to a managed service on IBM Cloud or installed on IBM Cloud Pak for Data, and describes how to use the product regardless of how it is

deployed. Information that applies exclusively to one deployment type is denoted by the appropriate tag:



Bring generative AI capabilities into any virtual assistant:

Build your intelligent virtual agent on watsonx Assistant - our no-code/low-code conversational AI platform that can embed customized Large Language Models (LLMs) built on watsonx.ai. IBM's artificial intelligence solutions empower companies to automate self-service actions and answers and accelerate the development of exceptional user experiences.

What's included

Conversational search with generative AI

Conversational search leverages Large Language Models (LLMs) for retrieval-augmented generation (RAG), designed to generate accurate, conversational answers grounded in your company's content. Move away from manually building rules-based FAQ chatbots - it's easier and faster to use generative AI in combination with your knowledge base to automatically generate answers in response to the wide range of questions you might receive from your customers. Get started now using watsonx

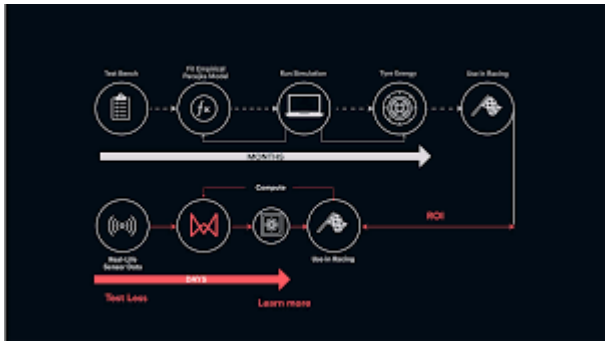
Assistant’s step-by-step starter kits and low-code custom extensions framework.

Improved reasoning and user intent recognition

Our natural language understanding (NLU) engine uses a new foundation model based on transformer architecture to better understand human language and classify requests with a fraction of the training effort. AI bots built on wat sonx Assistant can achieve an exceptional level of classification accuracy with an average of just 5 training examples per topic, simplifying workflows and saving teams the hours, days, or weeks of data analysis formerly needed to train their virtual assistant to understand customers.

Auto learning AI technology

When users interact with virtual assistants, they often choose between various resolution methods. Self-learning generative AI chat bots built on our conversational AI platform employ algorithms that automatically learn from past interactions how best to answer questions and improve conversation flow routing.



AI technology constantly enriched by cutting-edge research

Assistant partners with IBM Research to deliver innovations in artificial intelligence, machine learning, deep learning, natural language processing (NLP) and understanding, conversational AI, generative AI, and automation, infusing these innovations directly into Assistant.

Access customized watsonx LLMs with the flexibility to bring your own LLMs

Assistant leverages IBM foundation models trained on massive datasets with full data tracing, designed to answer questions with accurate, traceable answers grounded in company-specific information. Bring your own LLMs to customize your virtual assistant with generative capabilities specific to your use cases.

Personalized chatbots that can guide users without breaking

Wat son chat bots gracefully handle messy customer interactions regardless of vague requests, topic changes, misspellings, or other communication challenges. The powerful AI engine knows when to answer confidently, when to offer transactional support, or when to connect to a human agent.

BUILD & DEPLOY ML APPLICATION:

Before we dive in, let's talk a bit about how Chat GPT works. This will help you understand what's interesting about each AI chat bot and use it to your advantage.

Chat GPT is an app created by Open AI that lets users interact with its AI models: GPT-3 and GPT-4. The app takes the prompts you write and passes them to the AI model. This model runs the prompt through its systems and returns the results back to the app, so you can read them in a conversational chat bot style.

While the app takes care of the features—for example, saving your conversation history—the AI model takes care of the actual interpretation of your input and the calculations to provide an answer. For more context, take a look at our breakdown of Chat GPT vs. GPT.

Most of the apps on this list are also powered by Open AI's GPT models. But even when that's the case, the app developers can pass additional commands to configure how the model replies, so you may see different results when you try each chat bot, even though they're running on the same engine. (Some apps on this list use non-

GPT models, which are proprietary to the company that built the app.)

With that in mind, here's what I was keeping an eye out for as I tested each AI chat bot online:

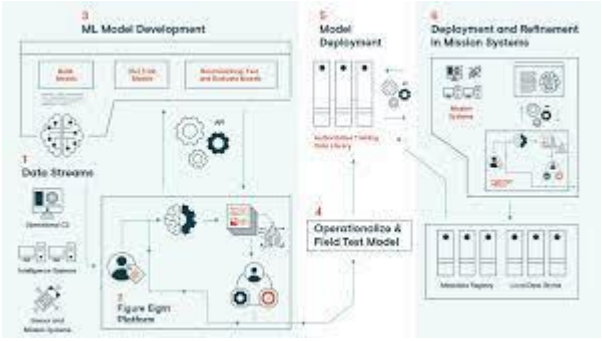
Accuracy and responsiveness. Given that most AI chat bots are using GPT right now, they'll generally give you similar-h content. But there were some duds. I didn't include any platforms that couldn't generate coherent language, that delivered wildly inaccurate information on a consistent basis, or that couldn't move a conversation forward naturally.

Easy access. There shouldn't be any advanced setup or technical requirements to talk to a chatbot, when you can do it quickly (and for free) with Chat GPT.

Chat experience. There are lots of ways to interact with AI, but the staple of Chat GPT is interacting with the model through a chat window. With a few exceptions, each app on this list is a conversational AI chat bot (I'll explain any exceptions as I get to them).

Extra features. Anything on top of entering your prompt and receiving the output is welcome, from multi-language support to connecting directly to the internet.

Based on my research and experiences interacting with them, here are the best AI chat bots for you to try. Have fun—I know you will.



Microsoft Bing AI

Microsoft upped its investment in Open AI and started developing and rolling out AI features into its products. One of those was Bing, which now has an AI chatting experience that will help you search the web. Once you enter your prompt, it will search the internet for you, process the results, and present you with a reply containing the links it used as a base.

It can now show image results in the chat window, but it doesn't pick up too well on the intent of image search: it usually prints out a list of image links instead of an image gallery. And if you want to re-read past conversations, you can do so by clicking on each one on the right side of the screen.

Bing AI is still behaving strangely, sometimes ending conversations abruptly—still, it's nothing like when it revealed its gas lighting skills. Don't take it personally if it says it doesn't want to continue the conversation. Hit New Thread, and keep going.

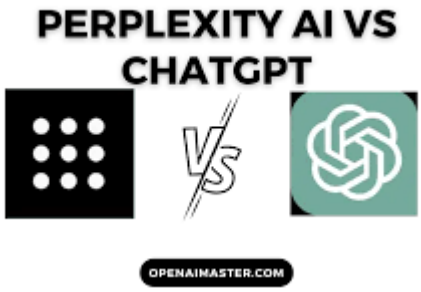
Perplexity is another take on AI internet-connected chat bots for handling more information and longer, less organized searches. Here's why: when getting the output, you'll see a list of all the sources below it. Then, you can add a new prompt to continue that search, or pick one of the suggested related search terms. All the results will stack on the bottom, so you can scroll up or down to read everything.

You can tick Co pilot in the search bar to get some help in product recommendations, best healthy recipes, or travel tips, for example. Once you enter your prompt, Perplexity will ask you a set of qualifying questions to home in on your intent. The resulting output summarizes all the key information, acting as a good starting point for a deep dive.

When you share your chats with others, they can continue the conversation you started without limitations. On your end, you can see the views for shared conversations, likes, and follow-up questions, making the experience more interactive.

Now better prepared for advanced tasks like solving equations and processing real-time data by leveraging Wolfram Alpha, Perplexity is

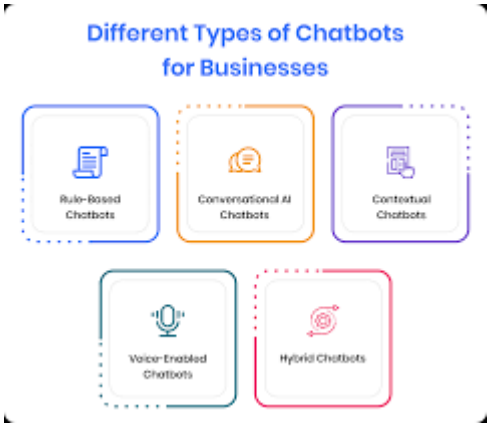
positioning itself more and more as a powerful and straightforward search tool.



5 types of chat bot and how to choose the right one for your business

Now, more than ever, different types of chat bot technology plays an increasingly prevalent role in our lives, from how we receive customer support or decide to purchase a product to how we handle our routine tasks. Many of us have interacted with these chat bots or virtual assistants on our phones or through devices in our homes—such as Apple's Siri, Amazon Alexa and Google Assistant. You may have interacted with these chat bots via SMS text messaging, social media or with messenger applications in the workplace.

Chat bots have made our lives easier by providing timely answers to our questions without the hassle of waiting to speak with a human agent. In this blog, we'll touch on different types of chat bots with various degrees of technological sophistication and discuss which makes the most sense for your business. Before addressing these questions, we'll start with the basics.



Chat bots explained

A chat bot is a conversational tool that seeks to understand customer queries and respond automatically, simulating written or spoken human conversations. As you'll discover below, some chat bots are rudimentary, presenting simple menu options for users to click on. However, more advanced chat bots can leverage artificial intelligence (AI) and natural language processing (NLP) to understand a user's input and navigate complex human conversations with ease.