**GROUP 2**

SECTION A : QUESTION 12

SECTION B : QUESTION 3

**CHATBOTS**

* A chatbot is a computer program that simulates human conversation through voice commands or text chats or both.
* It’s an AI feature that is embedded and used through any major messaging applications

1. **USES**

Chatbots can be used for:

1. Order processing

Industries especially the food industries and Ecommerce businesses are leveraging on the use of chatbots for receiving and processing orders and also engaging with their customers. Examples: KFC, Domino’s Pizza, Ava by Kilimall.

1. Customer support

Chatbots can be implemented in customer support service to answer more basic questions while the rest of the staff members handle more complex issues.

1. Data driven marketing

With their machine learning capabilities chatbots can monitor customer behavior such as buying decisions, preferences and items purchased to tailor information that will help marketers create more personalized offers and design content that will be specifically appealing to a customer.

1. Information retrieval from the internet

Chatbots especially the ones that work through voice commands are efficient in fetching requested information from the internet on any topic. Examples: OK Google from Google assistant, Siri, Alexa

1. **APPLICATIONS**
2. Customer support

Chatbots can be used by companies to handle customer requests, handle digital sales and other transactional queries. Example: Safaricom’s Zuri which manages premium SMS subscriptions, M-Pesa reversals, airtime top-ups etc.

1. Healthcare assistant

Conversational chatbots are deployed in the healthcare sector to reduce long waits and free up times for, patients, nurses and doctors.

Examples:

* Sophiebot – a Nairobi based project that answers questions about sexual health.
* Medicbot from Egypt that facilitates communication between patients and physicians.
* One remission an Integrative Oncology application augmented with a chatbot, which plays the role of a physical, mental, and social health consultant

1. Hospitality

Radisson Blu Edwardian hotels use a virtual host called Edward to help guests with a variety of things from; online check-in, to handling customer inquiries, letting them know their rooms are ready and more.

1. Transportation

With advancements in the transportation industry companies such as Uber have partnered with Facebook to enable users to sign up for Uber and request rides, without having to leave Messenger or download the Uber app. Ride status updates and ride receipts are delivered to a private conversation between the customers and Uber on Messenger, making it easy to track Uber rides and payment history.

1. Travel

Chatbots are used to help in vacation planning and making reservations by making itineraries, hotel and restaurant reservations, scheduling and booking flights

Example: Mezi by American express

1. E-commerce

Helps in improving customers’ shopping experiences by helping them find the items they want at the desired price range. Example Ava by Kilimall, ShopBot by eBay.

1. Banking and finance

Chatbots are used by most banks for information services, investment management, credit applications, money transfers and bill payments.

Examples: Barclays (Absa) bank through Facebook messenger, Ada by Diamond bank in Nigeria which also uses Facebook messenger

1. Media

Media publishers use chatbots for content delivery, to engage with their audiences and monitor engagement to gain valuable insights on reader interest.

Examples : CNN and Fox news on Facebook messenger

1. Weather forecasting – some chatbots are capable of sending personalized weather forecasts and astrological predictions , e.g. Poncho
2. **CHALLENGES**
3. Chatbots lack emotions – bots are too mechanical, they have pre-programmed conversations making them only handle customer requests when the flow of the conversation follows a specific path.
4. Difficult to create – Chatbots require a significant amount of coding knowledge, time and effort to create
5. They are made to handle first-level questions – chatbots are made to handle first-level questions this results to them not being able to solve complex queries hence failing to address some concerns customers/users may have.
6. They require continuous maintenance – chatbots require ongoing review, maintenance and optimization in terms of their knowledge base and the way they are supposed to communicate with users.
7. They are limited only to specific types of business – chatbots are best suited where customer requests are predictable such as companies providing services such as taxi, food delivery, hotel rooms booking, tickets selling and retail trade
8. They are highly costly – one needs to hire highly skilled professionals to create rightly programmed chatbots to match the integrity of your business. They also require a substantial investment into AI and machine learning.
9. Chatbots have poor decision making skills – chatbots lack the right know-how to differentiate between the good and bad.

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**SECTION B**

* 1. **Human intelligence can be defined as "a person's ability to solve problems, utilize logic and think critically". Discuss how this definition compares and differs with the definition of artificial intelligence**

Artificial intelligence is defined as the “simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.”(Jake Frankenfield, 2020)

Comparison

Both AI and human intelligence both have the ability to learn from experience and adapt to new situations.

Difference

However, artificial intelligence differs from human intelligence in many ways. For example, artificial intelligent systems are trained to do clearly defined tasks. Human intelligence on the other hand is not specialized to a specific task. Humans are built to handle different tasks.

* 1. **To varying degrees, computers can see, hear, speak, feel and smell. Some people think we should continue to pursue this area of Artificial Intelligence research with vigor, some feel that machines should not be given human qualities. Giving reasons and appropriate examples, explain your view.**
* Artificial Intelligence should continuously be pursued due to its immense benefits in various fields and the promising future it holds.

1. Artificial Intelligence is revolutionizing agriculture.

AI is being used in the agriculture industry extensively. Robots are used to plant seeds, fertilized crops and administer pesticides. Farmers can also deploy the use of drones to monitor the cultivation of crops and also collect data for analysis.

The data collected is analyzed by AI on such variables as crop health and soil conditions, boosting final production and it can also be used in harvesting, especially for crops that are difficult to gather.

1. Reduction in human error.

With the use of AI decisions are taken from previously gathered information and the application of a certain set of algorithms. For example the use of self-driving cars (e.g. Tesla cars) overtime will greatly reduce human errors in road accidents which include human accidents are alcohol, speeding and reckless driving.

1. Increased productivity

AI offers high processing speeds. Billions of data can be processed and corresponding actions done in a matter of seconds as compared to actual human staff.

1. Rapid decision making process.

AI systems rapidly consider all the major factors by analyzing trillions of data and helping us make better informed decisions.

Example – Netflix uses an artificially intelligent recommendation system that recommends movies to users based on their interest.

1. Reduces cost of goods and services

AI helps in cutting down production and operating costs, by reducing the need for manpower, among many other things.

1. Highly efficient and effective in carrying out repetitive tasks since it is machine based. For example the application of AI in the food making industry especially in restaurants, AI systems can produce the same recipe over and over again without getting tired or messing with quality.
2. 24/7 availability – AI systems are able to execute non-stop tasks because they can run 24/7 without stopping as they are not human that will need to rest and go to break.
3. AI systems are able to handle low-level tasks on autopilot that would rather consume a lot of our time and energy; this allows us to have time to focus on high-level tasks that requires genuine human intelligence. Examples of the low level activities include mowing our lawn or cleaning floors.
4. AI has opened up a lot money making opportunities hence reducing unemployment rates across the world.
5. AI has helped in transforming the healthcare sector. The use of AI has helped in drug discovery, surgical procedures, medical examination and analysis.
6. AI can be used to create AI robots that can undergo dangerous explorations instead of humans, like in the exploration of mars, defusing bombs, mining for coal and oil and many scientific explorations.
7. Improvement in security – through cyber-security, crime detection is much more easier especially in fraud detection in card-based systems
8. Transforming the Education sector – AI can be applied in learning especially in personalized learning. With AI students can now be taught personally according to their unique learning abilities and characteristics.
9. Creation of new jobs – AI has resulted in the creation of new jobs like machine learning engineers and programmers.

Conclusion

Artificial intelligence is very useful in all industries as more research is being done to advance it. The advancements in this AI tech will be most useful if it is understood and trusted. An important part of it is that artificial intelligence and related technologies such as drones, robots, and autonomous vehicles can create around tens of millions of jobs over the next decade. Having more jobs created — not less — will be great news for everyone. More jobs will help boost the GDP of the economy. Advancement in AI and its impressive computational power has already led to the concept of supercomputers and beyond.

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