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Q1. How and where is Facebook using Machine Learning to improve user experience? (2.5 marks)

Ans. Facebook makes use of machine learning in a lot of areas such as:

- I. In the pictures uploaded by users, to recognize faces which the user can then tag.
- II. In Facebook ads to provide ads to the user based on his/her interests. This is done using algorithms which analyze the user's age, gender, location, page likes, and interests etc. to put the user into different categories and then show them ads which specifically cater to those categories.
- III. Facebook makes 'People you may know' suggestions using machine learning as well. The algorithms analyze things such as mutual friends, the places where the person studies or works etc. to make suggestions.
- IV. Facebook makes page and group suggestions by analyzing the user's interests and which other pages the user is following.
- V. Facebook makes use of machine learning to translate text from one language to another as accurately as possible by clicking the 'See Translation' button.
- VI. The Newsfeed in Facebook also uses machine learning to prioritize posts, where the friends and pages the user interacts with more often are given higher priority and their posts shown higher up in the newsfeed.

Q2. How do you think deep learning can change the world and do wonders? (2.5 marks)

Ans. Deep learning will improve countless products and services exponentially. Speech recognition, targeted advertising, drug discovery, and image searches are just a few of the applications.

Deep learning will help driverless cars to identify and prioritize which objects to avoid in its path for example if there is a baby carriage in its path the car will apply the brakes where as something like a ball or umbrella will be run over.

Advancements in deep learning can revolutionize medical research. Treatments to currently incurable diseases can be found. It will also be easier to detect symptoms of diseases in a person in the earliest stages which will increase the chances of a successful treatment. It will even identify mutations in DNAs that cause some diseases such as cancer and will help in finding its cure. All these processes would be completed faster and more efficiently with deep learning.

Deep learning will make the robots stronger and smarter than they are now and maybe at some point in the future make them become as intelligent as human beings so that they will be able to think and make decisions themselves. This intelligence along with the vast amounts of data available to the machines and robots will enable them to make discoveries greater than ever and much faster than humans.

The idea of machines being as intelligent as human beings is a controversial topic but there is a still long way to go before such a level of technology would be achieved.

Q3. What is your dream AI project that can become into reality and can have a commercial value? Justify your answer. (5 marks)

Ans. My dream AI project would be one which would help the deaf people in their everyday lives. A pair of glasses, which will have a microphone as well as camera attached to it both of which will not be very visible, will be wirelessly paired with another device such as a smart phone and a smart watch through an app. It will be able to both lip read and listen to what people are saying in order to generate text which will be as accurate as possible on the paired device. It will also be able to detect different languages and translate them to the user specified language. All this will be done through AI technology. This will help the deaf people to blend in with everyone else and do stuff like attend normal school. The device will also pick up other sounds for example that of a door bell or phone ringing or even a crash or an approaching vehicle and various other sounds and alert the person through a vibration and light on their paired device such as the smart watch on their wrist and will be able to tell the person what the sound is through a small message such as 'phone ringing' and even be able to detect how far away the sound is. It will be able to make distinctions between sounds and identify which sounds are important and ignore unnecessary background noises.

This device will have a high commercial value since hearing aids are very expensive and not everyone can afford them. This device will be cheaper and longer lasting than hearing aids and will be made easily available to the people. It will also be popular among people who travel to a different country and do not understand the language there.