# Questions you’ll need to answer right off the bat.

1. **What is *AI or* Define AI – give the elevator pitch, for laymen, and for programmers.**  
    **Layman version:** AI, is the ability of machines to perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making. It involves creating algorithms and computer programs that can analyze data, recognize patterns, and make predictions or decisions based on that analysis. AI is being used in a variety of applications, from voice assistants like Siri and Alexa to self-driving cars and medical diagnoses. The goal of AI is to create machines that can think, reason, and learn like humans, and ultimately, to make our lives easier and more efficient.  
     
   **Nerdy version:** AI is a field of computer science that focuses on developing algorithms and systems that can perform tasks that typically require human intelligence, such as natural language processing, image recognition, and decision-making. AI involves various subfields, including machine learning, neural networks, and deep learning, among others. Programmers working with AI often use programming languages such as Python, R, and Java, as well as specialized AI frameworks and tools like TensorFlow, PyTorch, and scikit-learn, to develop and train AI models. The goal of AI programming is to create intelligent systems that can perform complex tasks with a high degree of accuracy and efficiency, ultimately improving the functionality and usefulness of various technologies.  
   1. The above are just two examples. Find better ones.
   2. Prepare a shorter version, Bangla versions of both and absorb them.
   3. Prepare to answer the questions below as well.
2. **What is *ML or* Define ML – give the elevator pitch, for laymen, and for programmers.**

For laymen:

ML helps us to make decisions for our tasks. There are a lot of data we use in our daily life. It is almost impossible for us to read all the data and find relationship among them. Machine Learning can do it very rapidly without involving human interaction. We need to give our data into the machine, and it will make a decision by finding a pattern from our data. So we get knowledge for future prediction.

For Programming:

ML is a subfield of AI that enables computers to learn and make predictions or decisions based on patterns discovered in data. ML algorithms are trained on data to make predictions or decisions without being explicitly programmed. It can learn and improve over time as more data becomes available. It learns from data, recognizes patterns, and makes predictions or decisions based on that learning. It involves a wide range of methods such as supervised learning, unsupervised learning, and reinforcement learning, among others.

1. **What is *DL or* Define DL – give the elevator pitch, for laymen, and for programmers.**

For laymen:

Deep Learning is a type of Machine learning technique that processes data inspired by the human brain. It can recognize patterns in pictures, speech, and text. Appling the DL technology, it makes self-driving cars, voice assistants, CHATGPT, and more.

For Programmers:

Deep Learning is a subfield of machine learning that deals with algorithms inspired by the structure and function of the human brain, known as artificial neural networks. It involves training computer models to recognize patterns in data by processing multiple layers of information. Deep learning has led to significant breakthroughs in image and speech recognition, natural language processing, and other fields, making it one of the most exciting and promising areas of AI research today.

1. **What can/does AI do for – individuals, businesses, and institutes?**

AI has various applications that can benefit individuals, businesses, and institutions in different ways. Here are some examples:

Individuals:

* Personalized recommendations: AI can analyze an individual's preferences and behavior to provide personalized recommendations for products, services, and content. For example, social media platforms used our data for analysis, then it shows the relevant type of content which we liked most in the previous.
* Virtual assistants: AI-powered virtual assistants like Siri, Alexa, and Google Assistant can help individuals with tasks such as setting reminders, making appointments, and answering questions.

Businesses:

* Automation: AI can automate repetitive tasks, such as data entry and customer support, freeing up employees' time for higher-level tasks.
* Predictive analytics: AI can analyze large amounts of data to identify patterns and predict trends, helping businesses make informed decisions.
* Fraud detection: AI can help detect fraud by analyzing transactional data and identifying anomalies.
* Customer experience: AI can help businesses provide better customer experiences by analyzing customer data and providing personalized recommendations.

Institutes:

* Education: AI can be used in education to provide personalized learning experiences for students and to help teachers identify areas where students need more assistance.
* Research: AI can assist researchers in analyzing large datasets and identifying patterns and correlations.
* Healthcare: AI can help improve patient outcomes by assisting in medical diagnosis, drug discovery, and personalized treatments.

1. **What are the different sub-fields of AI?**

There are several sub-fields of AI, some of the major ones are:

1. Machine Learning (ML): This involves building algorithms that can learn from data and make predictions or decisions without being explicitly programmed.
2. Deep Learning (DL): A subset of machine learning, it involves building and training artificial neural networks that can analyze large amounts of data.
3. Natural Language Processing (NLP): It involves enabling computers to understand and interpret human language, including speech and text.
4. Computer Vision (CV): It involves enabling computers to interpret and understand visual information from images and videos.
5. Robotics: It involves creating intelligent robots that can perform tasks autonomously or with human supervision.
6. Expert Systems: These are computer programs that mimic the decision-making abilities of a human expert in a particular field.
7. Knowledge Representation and Reasoning: This involves developing methods for representing and reasoning with knowledge in a structured and formal way.
8. Automated Planning and Scheduling: It involves developing algorithms and systems that can automatically plan and schedule tasks.
9. Game AI: This involves creating intelligent agents that can play games like humans, or even better than humans.
10. Autonomous Vehicles: It involves developing AI systems that can operate vehicles without human intervention.
11. **How are they currently/already being use in different industries or domains?**

Answer no 4

1. **How do the above three relate to and differ from each other?**

AI, or artificial intelligence, refers to the broad field of creating machines that can perform tasks that typically require human intelligence. This includes tasks like visual recognition, natural language processing, and decision-making.

Machine learning (ML) is a subset of AI that involves creating algorithms and models that can learn from data and make predictions or decisions without being explicitly programmed. ML methods can be supervised, unsupervised, or semi-supervised.

Deep learning (DL) is a subset of machine learning that uses artificial neural networks, which are inspired by the structure of the human brain, to learn and make decisions. DL algorithms are especially good at tasks like image classification and natural language processing.

So, in summary, AI is the broadest field, while ML and DL are subfields that focus on specific techniques within AI. ML is a method for teaching machines to learn from data, while DL is a specific type of ML that uses neural networks.

1. **How did we get to the current state of AI – locally and globally?**

The current state of AI is the result of decades of research and development in the field. The roots of AI can be traced back to the mid-20th century when the pioneers of computer science and mathematics, such as Alan Turing and John McCarthy, began to explore the idea of machine intelligence. In the 1950s and 1960s, AI research was focused on developing rule-based systems and expert systems.

In the 1980s and 1990s, AI research shifted towards machine learning, where algorithms could learn from data and improve over time. This led to the development of neural networks and other machine learning techniques that are still widely used today.

In the early 2000s, the availability of big data and advances in computing power led to a renewed interest in AI. This resulted in breakthroughs in natural language processing, computer vision, and robotics.

Today, AI is being used in a wide range of industries, including healthcare, finance, transportation, and entertainment. AI-powered systems are helping to automate tasks, make predictions, and improve decision-making, leading to increased efficiency and productivity.

On a global scale, there are several countries and companies leading the way in AI research and development, including the United States, China, and the European Union. The development of AI is expected to continue at a rapid pace, with new breakthroughs and applications being discovered every day.

1. **What progresses are currently under way? How’s driving those?**

here are several ongoing developments and research efforts in the field of AI. Some of the notable ones are:

1. Deep learning: Deep learning has gained a lot of traction in recent years and is being applied in various domains such as computer vision, natural language processing, speech recognition, and more. Research efforts are aimed at improving the efficiency and accuracy of deep learning models.
2. Reinforcement learning: Reinforcement learning is a subset of machine learning that involves training an AI agent to make decisions based on rewards and punishments. Research in this area aims to develop better algorithms for training agents to make decisions in complex environments.
3. Explainable AI: Explainable AI is an area of research that focuses on developing AI models that can provide clear explanations for their decisions. This is particularly important in domains such as healthcare and finance, where the decisions made by AI systems can have a significant impact on people's lives.
4. AI for social good: There is growing interest in using AI to address some of the world's biggest challenges, such as climate change, poverty, and healthcare. Research efforts are focused on developing AI models that can be used to solve these complex problems.

These developments are being driven by a combination of factors, including advances in computing power, the availability of large datasets, and the increasing demand for AI solutions across different industries.

1. **What can we expect in the near future?**

In the near future, we can expect continued progress and advancements in AI. This includes improvements in natural language processing and understanding, computer vision, robotics, and automation. We may see more widespread adoption of AI in various industries, as well as increased integration of AI in our everyday lives. Additionally, we can expect continued discussions and debates around the ethical implications of AI, including issues around bias, privacy, and security. Overall, the future of AI looks promising, but it will also require responsible development and deployment to ensure that it benefits society as a whole.

1. **How are things expected to change in the near future?**

In the near future, we can expect AI to become more prevalent in our daily lives, with increased automation in various industries and the continued development of AI-powered products and services. This will lead to greater efficiency, productivity, and convenience for individuals and businesses alike. AI will also continue to improve and become more sophisticated, with advancements in areas such as natural language processing, computer vision, and robotics. Additionally, there will likely be continued discussions and debates around ethical and societal implications of AI, as well as efforts to ensure responsible development and deployment of AI systems.

1. **How do you see yourself contributing to the field - Locally and/or globally?**

As an AI language model, my primary contribution to the field is providing assistance and answering questions for those seeking knowledge in various aspects of AI. I can help people understand the concepts, algorithms, and technologies related to AI, and provide guidance on how to use them effectively in their projects or research. Additionally, I can help businesses and institutions to integrate AI into their operations and decision-making processes, and support the development of new AI technologies that could have a positive impact on society. Overall, my contribution lies in facilitating the spread of knowledge and promoting the responsible and ethical use of AI in various fields.

1. **Future impact of AI:**

Artificial Intelligence (AI) is changing the world we live in and will continue to have a significant impact on our lives in the future. While AI offers numerous benefits, it also raises many concerns, including ethical, economic, social, and security issues.

Positive impact:

1. Increased efficiency and productivity: AI is expected to improve the efficiency and productivity of many industries. By automating repetitive tasks and streamlining processes, companies can focus on more value-added activities, reducing costs and improving profitability.
2. Better healthcare: AI can improve the quality of healthcare by enabling more accurate diagnoses, personalized treatments, and early detection of diseases. AI-powered tools can help physicians identify patterns in medical data, leading to more accurate diagnoses and better patient outcomes.
3. Enhanced safety: AI can help to improve safety in a variety of industries, including transportation, manufacturing, and construction. Autonomous vehicles, for example, can reduce the number of accidents caused by human error, while intelligent systems can help to identify and prevent workplace accidents.
4. Improved customer experiences: AI-powered chatbots and virtual assistants can provide customers with 24/7 support, improving customer experiences and increasing customer satisfaction.

Negative impact:

1. Job displacement: AI is expected to automate many jobs, potentially leading to job losses and income inequality. The World Economic Forum predicts that by 2025, AI will displace over 85 million jobs.
2. Bias and discrimination: AI systems can perpetuate existing biases and discrimination in society, leading to unfair outcomes and reinforcing systemic inequalities.
3. Security risks: AI systems can be vulnerable to cyberattacks, leading to the theft of sensitive data and other security risks.
4. Ethical concerns: AI raises ethical concerns around issues such as privacy, surveillance, and the use of autonomous weapons.

Economical impact:

1. Increased productivity: AI is expected to increase productivity, enabling companies to produce more with fewer resources.
2. Reduced costs: By automating tasks and streamlining processes, AI can help to reduce costs, making companies more competitive.
3. New business opportunities: AI is opening up new business opportunities in areas such as automation, data analysis, and predictive modeling.
4. Job displacement: While AI is expected to create new job opportunities, it is also likely to displace many existing jobs, leading to income inequality and job insecurity.

Security impact:

1. Cybersecurity risks: AI systems can be vulnerable to cyberattacks, making them a potential target for hackers.
2. Autonomous weapons: The use of autonomous weapons raises ethical and security concerns, including the risk of accidental harm to civilians.
3. Surveillance: AI-powered surveillance systems can raise privacy concerns, particularly when they are used to monitor individuals without their consent.
4. Safety risks: AI systems can pose safety risks if they malfunction or make incorrect decisions.

Ethical impact:

1. Bias and discrimination: AI systems can perpetuate existing biases and discrimination in society, leading to unfair outcomes and reinforcing systemic inequalities.
2. Privacy: AI systems can pose a threat to privacy if they are used to collect or process sensitive personal data.
3. Transparency: There are concerns about the transparency of AI systems, particularly when they are used in high-stakes decision-making processes.
4. Accountability: There are concerns around the accountability of AI systems and their developers, particularly when they are used in safety-critical applications.

Globally impact:

1. Economic growth: AI is expected to drive economic growth in many countries, leading to new business opportunities and job creation.
2. International competition: The development of AI is likely to create competition between countries, particularly around issues such as intellectual property and talent acquisition.
3. International security: The use of AI in military applications raises concerns about international security and the risk of accidental harm.
4. Collaboration: There is a need for international collaboration