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Q1) Conceptually based on the IOT and predective AI below are:

a) Sensors: We need to start with deploying sensors on the aircraft to collect health of various components. This data can be data from enginee, avionics, structural components. We will also monitor temperature, pressure, vibration, fuel consumption and so on.

We also need to collect flight data, altitude, air speed, weather outside etc.

b) Data Storage: All this data needs to collected and stored at a central repository where it can be accessed and analyzed. cloud storage is popular these days.

Data will be aggregated here and data synchronization will also occur.

c) Data analysis: This is where our trained AI models to check the sensor data and identify any anamonies in the sensor data. These models will keep on learning and identifying misses.

d) Performing predective maintainence: is where based on the anomolies detected in the model we will plan the maintainence steps.

Flow chart

Sensors collect the data of health of aircraft

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Data is stored in a cloud storage

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Data is analyzed by AI models

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AI model predicts and schedules maintainance

↓

We can have scheduled maintance based on the data.

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Q27 (a) The value can be R squared or Adj R squared which should be >0.7 ideally and is 1 here so model is good.

b) Yes the model is statistically significant because values of Prob F static is 0 which shold be less than 0.05

c) This parameter Air temperature is significant and will have an impact because P>|t| is 0 as it should be < 0.05

d) Tool wear is not significant as P>|t| more than 0.05

e) Rotaton specd is statistically significant Because value of P>|t| is 0.00

Q3)

Predective maintainence	Preventive maintainence
It is predective in nature and uses condition monitoring techniques when maintainence should be performed.	Relies on performing maintainence activities at regular intervals regardless of the condition tools are in.
It is performed on real time data from sensors and allows activities to be performed precisely when needed. Can be automated with AI based on the values received from sensors.	It is performed on defined schedules and is often performed manually no no use of AI is involved mostly ex. Car maintainence done every year.

Q4)

a) For NLP resume screening is one of the activities where we can identify relevant skills from applicant resumes thus identifying key skills.

b) Supervised ML can be used in employee or customer churn prediction / attrition.

Q5) Some ways AI can help are:

- Predective analysis in AI can be used to gather data points on employee behaviour, job satisfaction, performance thus helping in creating patterns and identifying any risks that employee can leave.

- We can have personalized chat bots that can provide guidance to employees.

- Using NLP understanding current skills and then suggesting skill based trainings to employees.

Q6) Personalized recommendations is one of the key areas where based on the content we have watched or by signing into a questionire about the type of shows a person like AI can provide suggestions of similar content thus making customer satisfied

There can also be an enhanced search capability where based on user search his past search history is appended and making life easy. We can use voice as search which can improve the satisfaction rate.

Q7) With the help of AI algorithms in Computer Vision and image recognition we can easily and automatically detect brand logos. These logos can be part of images, videos, ad's etc. but AI algo's can easily detect them.

On the point how it can help brands.

- AI algo's using deep learning and CNN techniques easily find brand logos once trained on a large enough data set.
- AI can perform data collection and monitoring of these logos and check if they are being used in compliance with brand image
- AI can help find if there are any advertisements where logo's are present and helped improve sales.
- AI can also help in detecting best suited locations of brand logo on a jersey, shop etc. this making it visually more accessible to customers.
- It can also check if our brand logo is not being in an unauthorized capacity.