Task 4
ML Problem Types

Marks: 20

Time: 15 minutes

This task is based on your real-world understanding and ability to identify what kind of problem it is. Identify the type of ML problem. Mention whether a problem is Classification / Regression / Clustering / Association / Reinforcement type.

List the type of problem for the problems you specified in Task3 for the following domains

S.No	Healthcare	Type
1	**Disease diagnosis based on the symptoms**	Classification
2	**Personalized treatment based on their previous history**	Classification + Generative AI
3	**Patient betterment analysis based on their behavior for the brain related syndromes like Autism in children**	It is about how we design the system, consider final output is some improvement score based on the behaviors then it is regression

4	Health insurance claim automation based on the records from hospitals and fastening it by reducing human intervention	Multiple systems involved here. Image recognition in detecting data, NLP(NER) in analyzing data, and classification for fraud detection
5	Medical search and summarization for doctors from the cutting edge articles around the world using Generative AI - MedGPT using pubmed articles	Generative AI for search and inference, Clustering could be used to organize information and efficient retrieval.

S.No	Education	Type
1	Personalized curriculum plan based on their history	Recommendation / Associative
2	Personalized career suggestion based on their interest, academic history, and current trend.	Recommendation / Associative
3	Automatic engaging content generation for the students from the academic	NLP - Text Generation

4	Translation of educational contents from multiple languages to native language which will increase the inclusiveness in the society	Machine Translation - Transformers
5	New way of automated grading method based on different factors instead of static one-size fits all grading method	Regression if the system is going to output a score, or classification of system is outputting some discrete scores.

S.No	Banking	Type
1	Credit card card detection	Classification
2	Customer assistance using LLMs	NLP-Chatbot

3	**Automated workflows with minimal human interventions like account opening, account verification, etc**	Mostly some helper systems which emulates human behavior like account opening approver based on the user activities which might need classification
4	**Small scale, short-term loan sanctions based on their bank transaction history for the merchants.**	Classification
5	**Trading bots based on News and current trend factors same like retail human trader instead of trading based on financial sheet alone.**	Reinforcement Learning

S.No	E-Commerce	Type
1	**Semantic search of items (Both word semantics + visual features of items) instead of key word based search.** https://medium.com/@vignesh865/next-gen-search-unleashed-the-fusion-of-text-and-semantics-redefining-how-we-search-c67161aaa517	Reinforcement learning with human feedback.

2	**Influencer marketing is the current trend in E-commerce. Ranking influencer based on multiple factors like locality, value they bring on the table, suitability of the particular product, audience reach.**	Recommandation / Associative
3	**Accurate inventory projection by analyzing from production to last-mile delivery**	Regression
4	**Efficient Route planning for supply chain and last mile delivery**	Optimization / Regression
5	**Recommendation systems**	Recommandation / Associative

S.No	Your Problems	Type
1	**Knowledge base 2.0 based on LLMs for SAAS companies**	NLP - Information Retrieval
2	**Multi-variate stock market analysis using LLMs which should consider news, financials, past retailers actions, and charts.**	Time-series analysis, NLP, regression, Reinforcement learning if it is automatically traded.