BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA

ARTIFICIAL INTELLIGENCE (SUBJECT CODE 417)

CLASS IX

ASSIGNMENT SOLUTION

Questions on Employability Skills

1. Which of the following is not a self-management skill?

   a. Problem solving

   b. Self-Confidence

   c. Bargaining

   d. Indiscipline

2. What does GPS stands for?

   a. Global Positioning system

   b. b. Global Program system

   c. c. Globe Post System

   d. d. Grade Positioning System

3. Choose the correct example of oral communication

   a. Reports

   b. Newspapers

   c. Face-to-face conversations

   d. Article Writing

4. Improving your self-management skills:

   a. Builds your confidence

   b. help in making friends

   c. Cause Indiscipline

   d. Keep Us stressed

5. Why do we send emails?

   a. For instant Communication

   b. To share document and files

   c. To meet each other

   d. To Conduct meetings

6. Sustainable Development Goal 13 deals with_____

   a. Climate change

   b. Communities

   c. Water

   d. EnergY

7. Emails, Videos and Audios are examples of_____
   a. Structured Data
   b. Semi structured data
   c. Unstructured Data
   d. None of these

8. AI systems cannot_____data
   a. Sort
   b. Understand
   c. Classify
   d. Analyze

9. Unscramble the letters and find the name the first humanoid robot with a citizenship
   a) TERBHER OXEVE
   b) IAOHSP
   c) IRIS
   d) ACTROAN

Ans Sophia

10.Mention some real life applications of Data Sciences.

Ans: **1. In Search Engines**

The most useful application of Data Science is Search Engines. As we know when we want to search for something on the internet, we mostly use Search engines like Google, Yahoo, DuckDuckGo and Bing, etc. So Data Science is used to get Searches faster.

For Example, When we search for something suppose "Data Structure and algorithm courses " then at that time on Internet Explorer we get the first link of GeeksforGeeks Courses. This happens because the GeeksforGeeks website is visited most in order to get information regarding Data Structure courses and Computer related subjects. So this analysis is done using Data Science, and we get the Topmost visited Web Links.

2. In Transport

Data Science is also entered in real-time such as the Transport field like Driverless Cars. With the help of Driverless Cars, it is easy to reduce the number of Accidents.

For Example, In Driverless Cars the training data is fed into the algorithm and with the help of Data Science techniques, the Data is analyzed like what as the speed limit in highways, Busy Streets, Narrow Roads, etc. And how to handle different situations while driving etc.

3. In Finance

Data Science plays a key role in Financial Industries. Financial Industries always have an issue of fraud and risk of losses. Thus, Financial Industries needs to automate risk of loss analysis in order to carry out strategic decisions for the company. Also, Financial Industries uses Data Science Analytics tools in order to predict the future. It allows the companies to predict customer lifetime value and their stock market moves.

For Example, In Stock Market, Data Science is the main part. In the Stock Market, Data Science is used to examine past behavior with past data and their goal is to examine the future outcome. Data is analyzed in such a way that it makes it possible to predict future stock prices over a set timetable.

4. In E-Commerce

E-Commerce Websites like Amazon, Flipkart, etc. uses data Science to make a better user experience with personalized recommendations.

For Example, When we search for something on the E-commerce websites we get suggestions similar to choices according to our past data and also we get recommendations according to most buy the product, most rated, most searched, etc. This is all done with the help of Data Science.

5. In Health Care

In the Healthcare Industry data science act as a boon. Data Science is used for:

Detecting Tumor.
Drug discoveries.
Medical Image Analysis.
Virtual Medical Bots.
Genetics and Genomics.
Predictive Modeling for Diagnosis etc.

11.Differentiate between Learning based and Rule based models.

Feature	Learning-Based Models	Rule-Based Models
Definition	Models that learn from data to make predictions.	Models that use predefined rules to make decisions.
Data Dependency	Requires large datasets for training.	Operates based on a set of explicit rules.
Adaptability	Can adapt to new data and change over time.	Limited adaptability; rules need manual updates.
Complexity Handling	Can handle complex patterns and relationships.	Best for straightforward, well-defined problems.
Interpretability	Often considered a "black box"; harder to interpret.	Highly interpretable; rules are clear and understandable.
Performance	Generally performs better in diverse scenarios with enough data.	Performance can degrade with complex scenarios not covered by rules.
Examples	Neural networks, decision trees, SVMs.	Expert systems, if-then rules, decision trees (when used as rules).
Maintenance	Requires continuous data input and retraining.	Requires periodic review and updates to rules.
Use Cases	Image recognition, speech processing, recommendation systems.	Customer support systems, diagnostic tools, simple decision-making.

12.List down the various steps involved in AI Project Cycle.

Problem identification:

Finding the actual, root cause of the issue entails.

Clearly characterising the problem and **identifying its root cause.**

Correctly framing the issue (framing is a structural representation of a problem or an issue; it involves talking about and elaborating on the issue's context to foster better understanding.)

It's not always easy to see the problem. Although you might think the issue is merely

at the surface, this isn't always the case.

The problems are frequently not immediately obvious; they may seem little, but upon further examination, we discover that the **problems are complicated** and that the **initial problems** were **insignificant.**

Problem scoping:

While we are just starting off, there are always a few problems with the work or technique.These problems could be little or significant; sometimes we decide to ignore them, other times we need urgent fixes.**Problem scoping is the process through which we determine the problem that has to be solved.**

Data acquisition:

Raw facts, figures, information, or statistics are referred to as data.
Acquisition: Therefore, data acquisition refers to gathering the information needed to solve an issue. Acquiring data for the project is referred to as acquisition.

Data exploration:

Data visualisation is used to quickly identify ideas or to highlight areas or patterns that could be looked into further.The first step in data analysis is data exploration.

Modelling:

Artificial intelligence (AI) models are programmes or algorithms that use a set of data to identify specific patterns.When presented with sufficient evidence, this enables it to form an opinion or make a prediction.

Evaluation:

The outputs that are created by feeding data into the model and comparing the outcomes with the actual solutions are what are used to assess an API Evaluation's dependability.

Deployment:

Deployment, the action of incorporating a machine learning model into an already-existing production environment, enables you to use data to help you make informed business decisions.

13. What do you mean by Supervised Learning? Discuss with example.

Supervised learning is where a computer algorithm is trained on input data that has been labeled for a particular output. For example, a shape with three sides is labeled as a triangle, Classification and Regression models are also types of supervised learning.
Classification- Classification in which the algorithm’s job is to separate the labeled data to predict the output. Example: to predict the weather which of them is apple and pineapple.
Regression- Regression is a type of supervised learning which is used to predict continuous value. Example: Regression is used to predict the weather. it is also used widely for weather forecasting