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**Soft Introduction to Machine Learning**

Quiz #2 - ML

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| **Question #1** |
| Using the analogy of a box to illustrate a machine learning solution, what is the  primary function of that box? | |
| 1. To collect and store data like a database 2. To make sure the ML secrets are hidden inside the box 3. To analyze input and produce output 4. To design and build machine learning models inside boxes | |

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| **Question #2** |
| What are the main categories for ML tasks? | |
| 1. Clustering and Prediction 2. Classification and Prediction 3. Prediction, Classification and Generation 4. Prediction, Classification, Clustering and Generation | |

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| **Question #3** |
| Using Machine Learning for estimating future sales of a product by analyzing previous sales data is an example of: | |
| 1. Prediction 2. Classification 3. Clustering 4. Generation 5. None of the above | |

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| **Question #4** |
| What determines the **type of data** a machine learning box should receive and the **output type** it will produce? | |
| 1. The size of the machine learning box. 2. The complexity of the machine learning algorithm being used 3. The programming language that was used to build the box. 4. The specific task or use case for which the ML box is designed to handle. 5. The number of data points in the input dataset. | |

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| **Question #5** |
| What is the primary goal of **classification** in machine learning? | |
| 1. To group similar data points together 2. To create new content or data like text or image. 3. To predict a numerical value 4. To assign input data into predefined categories | |

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| **Question #6** |
| Which machine learning task is focused on **grouping similar data points** together based on their inherent characteristics? | |
| 1. Prediction 2. Classification 3. Clustering 4. Generation 5. None of the above | |

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| **Question #7** |
| What is the name given to the knowledge created inside the ML box during the training phase? | |
| 1. Trained model 2. ML Algorithm 3. Training Dataset 4. Features 5. Supervised Learning | |

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| **Question #8** |
| An ML box with an input and output is basically some kind of data transformation that can be presented as a simple math formula: Y = F(X). | |
| Yes  No | |

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| **Question #9** |
| In the context of Machine Learning, what do the variables X and Y, and function F represent in the formula Y = F(X)? | |
| 1. X is the output and Y is the input, F is the algorithm 2. X is the model, and Y is the input data, F is the output data 3. X is the input data, Y is the output, F is the trained model 4. X is for x-rays used to train the model, Y - is the yellow color of algorithm, and F is for the fun output. | |

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| **Question #10** |
| Why is it important to measure the **accuracy** of a trained model using performance metrics? | |
| 1. Ensure the model is not expensive to deploy. 2. Evaluate the model’s ability to perform the required task with the required level of accuracy. 3. Identify potential errors in the training data. 4. None of the above. | |

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| **Question #11** |
| What is the main difference between **structured** and **unstructured** data? | |
| 1. Structured data is more complex to process. 2. Structured data has a predefined format, while unstructured data does not. 3. Structured data is only used for numerical values. 4. Structured data is always larger in size. 5. Unstructured data is easier to analyze. | |

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| **Question #12** |
| Which of the following can be an example of **semi-structured** data? | |
| 1. A spreadsheet containing customer information as rows and columns. 2. An image file. 3. A social media post with text. 4. An email. | |

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| **Question #13** |
| What are the **input variables** used to train a machine learning model called? | |
| 1. Algorithms 2. Parameters 3. Features 4. Labels | |

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| **Question #14** |
| What is the process of removing, transforming, or adding features is being called? | |
| 1. Feature engineering 2. Data cleaning 3. Model evaluation 4. Hyperparameter tuning 5. Overfitting prevention | |

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| **Question #15** |
| Which of the following scenarios would be best suited for reinforcement learning? | |
| 1. Predicting the risk of customer churn. 2. Classifying images into different categories. 3. Generating text summaries. 4. Training a robot to play a chess game. 5. Clustering data points into groups. | |