DAIHC-1-05P: Python Programming for AI Lab

Total Marks: 50
External Marks: 35
Internal Marks: 25
Credits: 2

Detailed Contents:

S. No.	Name of Experiment
1	Create a chatbot-style symptom checker using if-else, for/while, and functions.
2	Model a "Patient" class with health attributes, methods for risk calculation, and error handling for invalid inputs.
3	Calculate average heart rate, BMI arrays, or perform array broadcasting on patient datasets.
4	Handle missing values, drop irrelevant features, and fill NA values in a diabetic patient dataset.
5	Preprocess a breast cancer dataset to prepare it for machine learning.
6	Plot blood pressure vs age, or pie chart of disease classes in a dataset.
7	Generate a correlation heatmap for features in a heart disease dataset.
8	Train a linear regression model and evaluate using RMSE and R^2 metrics.
9	Train a model on a diabetes dataset and evaluate using accuracy, precision, recall, and confusion matrix.
10	Build a pipeline to predict heart disease using a public dataset, with preprocessing, visualization, and classification using scikit-learn.

Books

- Raschka, S., & Mirjalili, V. (2019). Python machine learning: Machine learning and deep learning with Python, scikit-learn, and TensorFlow 2 (3rd ed.). Packt Publishing.
- VanderPlas, J. (2016). Python data science handbook: Essential tools for working with data. O'Reilly Media.
- Sharma, Y. K. (2020). Hands-on Python for data analysis: Use Python libraries such as Pandas, NumPy, Matplotlib, and Seaborn for data analysis and visualization. BPB Publications.
- Downey, A. (2015). Think Python: How to think like a computer scientist (2nd ed.). O'Reilly Media.