TechNest Intern

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MICRO, SMALL & MEDIUM ENTERPRISES

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LEARN -- INNOVATE -- THRIVE

DATA SCIENCE

INTERNSHIP PROGRAM

Data Science

TASK INSTRUCTION

- MUST ATTEMPT FOUR OUT FOUR TASKS
- SUBMIT BEFORE DEADLINE
- USE INTERNET RESOURCES
- FOLLOW GROUP UPDATES

"You are free to utilize any publicly available dataset from sources such as Google or Kaggle." OR
Use dataset provided in task

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🎯 TASK 1 : DATA PIPELINE DEVELOPMENT

OBJECTIVES:

- CREATE AN AUTOMATED PIPELINE FOR DATA INGESTION, CLEANING, TRANSFORMATION, AND LOADING.
- UTILIZE TOOLS LIKE PANDAS AND SCIKIT-LEARN FOR PREPROCESSING AND FEATURE ENGINEERING.
- ENSURE REPRODUCIBILITY AND SCALABILITY OF THE ETL PROCESS.

DELIVERABLE:

- A PYTHON SCRIPT OR JUPYTER NOTEBOOK AUTOMATING THE DATA PIPELINE STEPS.

DATASET LINK: TITANIC DATASET – KAGGLE ← CLICK

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🎯 TASK 2 : DEEP LEARNING PROJECT

OBJECTIVES:

- DESIGN AND TRAIN A DEEP LEARNING MODEL FOR EITHER IMAGE CLASSIFICATION OR NLP.
- USE TENSORFLOW OR PYTORCH FOR MODEL BUILDING.
- VISUALIZE TRAINING METRICS AND INTERPRET MODEL PREDICTIONS.

DELIVERABLE:

- A FUNCTIONAL MODEL NOTEBOOK WITH VISUALIZATIONS, EVALUATION, AND INSIGHTS

DATASET LINK: FAKE-AND-REAL-NEWS-DATASET ← CLICK

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🎯 TASK 3 : END-TO-END DATA SCIENCE PROJECT

OBJECTIVES:

- PERFORM DATA COLLECTION, EXPLORATION, MODEL BUILDING, AND DEPLOYMENT.
- USE FLASK OR FASTAPI TO CREATE AN API OR WEB APP TO SERVE PREDICTIONS.
- DEMONSTRATE A CLEAR PROBLEM STATEMENT AND SOLUTION PIPELINE.

DELIVERABLE:

- A WORKING DEPLOYMENT (LOCAL/SERVER) AND SOURCE CODE

DATASET LINK: E-COMMERCE SHIPPING ← CLICK

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🎯 TASK 4 : OPTIMIZATION MODEL

OBJECTIVES:

- FORMULATE AND SOLVE A BUSINESS OPTIMIZATION PROBLEM (E.G., COST MINIMIZATION OR RESOURCE ALLOCATION).
- USE LINEAR PROGRAMMING LIBRARIES LIKE PULP OR SCIPY.OPTIMIZE.
- PRESENT RESULTS AND BUSINESS RECOMMENDATIONS.

DELIVERABLE:

- A PYTHON NOTEBOOK WITH PROBLEM SETUP, OPTIMIZATION LOGIC, AND INSIGHTS.

DATASET LINK: SUPPLY CHAIN DATASET ← CLICK

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🎯 TASK 5 : EXPLORATORY DATA ANALYSIS (EDA)

OBJECTIVES:

- CONDUCT A COMPREHENSIVE EDA ON A DATASET.
- IDENTIFY TRENDS, OUTLIERS, AND CORRELATIONS USING VISUALIZATIONS.
- SUGGEST INITIAL HYPOTHESES FOR MODELING.

DELIVERABLE:

- A WELL-DOCUMENTED JUPYTER NOTEBOOK WITH INSIGHTS AND VISUALS.

DATASET LINK: NETFLIX MOVIES AND TV SHOWS ← CLICK

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🎯 TASK 6 : MODEL EVALUATION AND TUNING

OBJECTIVES:

- COMPARE MULTIPLE MACHINE LEARNING MODELS ON A DATASET.
- EVALUATE USING METRICS LIKE ACCURACY, F1-SCORE, ROC-AUC.
- PERFORM HYPERPARAMETER TUNING USING GRIDSEARCHCV OR RANDOMIZEDSEARCHCV

DELIVERABLE:

- A NOTEBOOK SHOWING MODEL COMPARISON, PERFORMANCE EVALUATION, AND BEST MODEL SELECTION.

DATASET LINK: STUDENTS PERFORMANCE ← CLICK

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🎯 TASK 7 : BLINKIT SALES AND OUTLET PERFORMANCE ANALYSIS USING PYTHON

You can refer to the file named **blinkit.txt** for more detailed information

OBJECTIVES:

- TO PERFORM AN END-TO-END DATA ANALYSIS OF BLINKIT'S ITEM SALES AND OUTLET PERFORMANCE USING PYTHON AND VISUALIZE INSIGHTS . THIS PROJECT FOCUSES ON DERIVING BUSINESS INTELLIGENCE TO IMPROVE OPERATIONS AND STRATEGY.

DELIVERABLE:

- NOTEBOOK WITH COMPLETE DATA PREPROCESSING AND VISUALIZATION

DATASET : BLINKIT_DATA.CSV - YOU CAN FIND IN FOLDER

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🎯 TASK 8 : SENTIMENT ANALYSIS ON PRODUCT REVIEWS

You can refer to the file named **Sentiment Analysis on Product Reviews.txt** for more detailed information

OBJECTIVES:

- TO ANALYZE CUSTOMER SENTIMENTS FROM TEXT REVIEWS OF PRODUCTS (E.G., AMAZON, FLIPKART, ETC.) USING NATURAL LANGUAGE PROCESSING (NLP) TECHNIQUES AND VISUALIZE THE RESULTS TO GAIN INSIGHTS INTO CUSTOMER SATISFACTION.

DELIVERABLE:

- NOTEBOOK.IPYNB – COMPLETE PYTHON CODE WITH OUTPUTS

DATASET : KAGGLE OR AMAZON REVIEWS OR FLIPKART REVIEWS OR OPEN APIS

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🎯 TASK 9 : FAKE REVIEW DETECTION USING MACHINE LEARNING & NLP

You can refer to the file named **Fake Review Detection.txt** for more detailed information

OBJECTIVES:

- BUILD A CLASSIFICATION MODEL TO DETECT FAKE OR SPAM REVIEWS USING NATURAL LANGUAGE PROCESSING AND SUPERVISED LEARNING TECHNIQUES.

DELIVERABLE:

- PYTHON NOTEBOOK OR STREAMLIT WEB APP

DATASET : KAGGLE OR AMAZON REVIEWS

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🎯 TASK 10 : DEMAND FORECASTING FOR A MULTI-STORE RETAIL CHAIN (TIME SERIES + ML)

You can refer to the file named **Time Series + ML.txt** for more detailed information

OBJECTIVES:

- DEVELOP A STORE-WISE DEMAND FORECASTING SYSTEM TO PREDICT FUTURE SALES AND OPTIMIZE INVENTORY USING HISTORICAL DATA.

DELIVERABLE:

- FORECASTING NOTEBOOK OR DASHBOARD
- STORE-WISE PREDICTION FILE
- FEATURE IMPORTANCE CHART
- INSIGHT REPORT FOR INVENTORY PLANNING

DATASET : ROSSMANN STORE SALES DATASET, WALMART, OR BIGMART SALES DATASET

OPTIONAL

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🎯 TASK 11 : YOUTUBE-BASED LEARNING TASK

OBJECTIVES:

- WATCH THE SUGGESTED VIDEO AND SUMMARIZE THE KEY TECHNIQUES AND CONCEPTS.
- APPLY THE LEARNED METHODOLOGY ON A DATASET.
- SHARE YOUR OUTCOMES ON LINKEDIN TAGGING TECHNEST INTERN.

VIDEO LINK: PYTHON FOR DATA SCIENCE – FREECODECAMP

DATASET LINK: DATA SCIENCE SALARIES 2023 – KAGGLE

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OPTIONAL

🎯 TASK : RESUME + LINKEDIN OPTIMIZATION

OBJECTIVES:

- DESIGN A CLEAN, JOB-READY RESUME FOR DATA-RELATED ROLES.
- OPTIMIZE YOUR LINKEDIN HEADLINE, ABOUT SECTION, AND PROJECTS.
- BUILD YOUR PERSONAL BRAND AND NETWORK PROFESSIONALLY.

TOOLS: CANVA, RESUME.IO, LINKEDIN
DELIVERABLE: PDF RESUME + LINKEDIN URL
OUTCOME: BOOST EMPLOYABILITY AND ONLINE VISIBILITY.

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INSTRUCTION

- STORE ALL YOUR WORK-RELATED CODE AND FILES IN A GITHUB REPOSITORY.
- MAINTAIN PROPER COMMENTING IN YOUR CODE FOR BETTER UNDERSTANDING AND READABILITY.
- USE RESOURCES LIKE YOUTUBE, GOOGLE, AND CHATGPT TO HELP YOU COMPLETE TASKS EFFICIENTLY.
- COMPLETE ALL FOUR TASKS AND SUBMIT THEM WITHIN THE DEADLINE WHILE WORKING AT YOUR CONVENIENCE.
- ✅ COMPLETION CERTIFICATE WILL BE ISSUED AFTER SUBMISSION AND EVALUATION OF ALL TASKS.
- 📍 MAKE SURE TO DOCUMENT YOUR WORK CLEARLY AND PUBLISH KEY FINDINGS ON LINKEDIN TAGGING @TECHNEST INTERN.

THANK YOU