Project Part 1:

Small Data Problem Analysis Report

Complete this document and submit it with your project.

Match the scenario with the most appropriate solution and explain your choice

Scenario #1: Travel Planner Problem

A travel planning company asks customers to share pictures of past vacations/holidays so their staff can identify what kind of trips they enjoy. The company offers three basic categories of trips:

- Exploring in the Forest
- Adventure in the Desert
- Relaxing on the Beach

As part of a new online trip planning software, the company is creating an AI bot that will automatically figure out from the uploaded photos which category is likely to be most appealing to the customer. The challenge is the company has fewer than 500 photos that are categorized, and they feel it will be difficult to train a model using such little data.

Scenario #1: Travel Planner Problem Should you use transfer learning or a synthetic data approach to solve this problem? Please explain your answer in a short paragraph containing 3-5 sentences.	The approach to this problem would be to use a transfer learning approach. An advantage of this choice pertaining to the data available is that transfer learning uses a deep neural network (a pre-trained model) to train on comparatively small data. This is also likely to yield faster training times and robustness in model generalization (better model performance) since it has already been trained on huge volumes of data.

Scenario #2 Loan Funding Prediction Problem

A loan company has a fairly large dataset that they want to use to train a model that predicts whether or not a loan should be funded. The problem they face is the dataset they are using has a large class imbalance... they don't have enough examples of loans that were denied. This is creating a model that doesn't perform well, particularly for loans that probably should be denied.

Scenario #2: Loan Funding Prediction Problem Should you use transfer learning or a synthetic data approach to solve this problem? Please explain your answer in a short paragraph containing 3-5 sentences.	A synthetic data approach would be ideal for this case since there is a class imbalance in data distribution. This approach could help tailor the data needs to certain conditions (uniform data distribution) that could influence model performance. Also, another benefit would be reduced effort and time used to collect authentic data.