**Project idea**

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**W25-PAK-INP-AI-27**

**AI Cademy**

**Title:**

Pancreatic cancer classification

**Description:**

This project focuses on developing an AI model to classify pancreatic cancer based on its type and characteristics. Using machine learning and deep learning techniques, the model can analyze medical data such as histopathology images, genomic profiles, or clinical records. The goal is to identify cancer subtypes (e.g., ductal adenocarcinoma, neuroendocrine tumors) and predict tumor stage, helping improve diagnosis and treatment planning.

**Tools**: TensorFlow, PyTorch, Pandas, NumPy, Scikit-learn.  
**Potential Models**: CNNs for image data, Random Forest or XGBoost for structured data.

**IDE**

* Jupyter Notebook
* Google Colab
* PyCharm or VS Code

These IDEs, combined with Python-based libraries, provide the best environment for tackling a complex project like pancreatic cancer classification.

**Tautology:**

Pancreatic cancer is one of the deadliest cancers with a high mortality rate due to its late-stage diagnosis and aggressive nature. Early detection and accurate classification of pancreatic cancer are crucial for better prognosis and treatment planning. This AI-based project focuses on developing machine learning or deep learning model to classify pancreatic cancer based on various data sources, including medical imaging, genomic data, and clinical records.

The goal of the project is to build a model that can distinguish between different types of pancreatic cancer, such as **pancreatic ductal adenocarcinoma (PDAC)** and **pancreatic neuroendocrine tumors (PNETs)**, and potentially classify cancer into stages. The model will leverage **Convolutional Neural Networks (CNNs)** for image data, **Random Forest** or **XGBoost** for structured data (like clinical features), and potentially integrate genomic data for a more comprehensive classification system.