**Project Topic Overview: Predictive Modeling of Software Bugs in Agile Development Using Historical Test Data**

**What is the Project About?**  
This project is focused on using machine learning (a branch of Artificial Intelligence) to predict which parts of a software application are most likely to contain bugs during Agile development. In Agile, software is built and updated continuously, which often leads to frequent testing cycles. However, testing everything all the time can be time-consuming and inefficient. That's where our project comes in.

We'll be analyzing historical test data and bug reports to train a machine learning model that can "learn" from past patterns. This model will help predict where bugs are most likely to appear in future builds. The goal is to make testing smarter by focusing attention on high-risk areas of the software, rather than blindly testing everything.

**Main Goal / Aim of the Project:**  
To develop an intelligent system that can analyze past software test results and bug reports, and use this information to predict future software bugs. This will help reduce unnecessary testing and improve software quality by catching bugs early and more efficiently.

**Why This Project Matters:**

* It saves time and effort in Agile testing cycles.
* It makes the testing process more efficient and data-driven.
* It applies real AI techniques to solve a common software engineering problem.

**What We Will Do:**

1. Collect or find historical bug and test data (from public datasets or mock data).
2. Preprocess the data (clean it, format it, and make it usable).
3. Train a machine learning model (like Decision Tree, Random Forest, etc.).
4. Evaluate the model using accuracy, precision, recall, and F1-score.
5. Present the results in a final report and prepare a presentation.

This project helps us apply what we’ve learned in Intelligent Systems and also gives us experience in real-world AI applications for software development.