**Assignment: Refactor and Deploy COVID-19 Risk Model**

**Goal:**  
Refactor a model training notebook into a modular, callable ML pipeline suitable for local deployment. This assignment assesses your ability to move from exploratory development to structured, reproducible ML code following common best practices.

**Package Provided:** A ZIP file assignment\_bundle.zip is supplied, containing:

* *datasets*/ directory with necessary data files
* *COVID\_19.ipynb* notebook (your starting point)

Please unzip *assignment\_bundle.zip* and begin by opening *COVID\_19.ipynb*.

**Your Tasks:**

1. **Refactor the notebook**
   * To enhance code clarity and future extensibility, organize your code into self-contained modules following standard coding best practices.
   * Decouple the training workflow into reusable functions or scripts, and serialize the trained model to disk so it can be programmatically loaded later.
2. **Model Serving**
   * Provide a simple way to serve predictions locally using a lightweight interface (e.g., CLI, API, or UI)
   * The interface should accept new inputs and return model predictions
3. **Tracking and Reproducibility**
   * MLflow or any other tracking/logging tools are encouraged but not required
   * You may include any additional artifacts that demonstrate good reproducibility and project hygiene
4. **Environment Management**
   * Include whatever setup or instructions you think are appropriate for someone to reproduce your work on a clean machine
   * We're interested in seeing your approach to managing dependencies
5. **Documentation**
   * Include a README.md with:
     + Setup instructions (how to install dependencies and run your app)
     + Example usage (e.g., sample input or curl command)
     + (Optional) 2–3 sentences on what you would improve or expand for production use
   * Version control your changes

**Deliverables:**

* Refactored codebase
* Any environment configuration files (if applicable)
* README.md with clear instructions and usage examples

**Time Limit:**  
Please submit your completed assignment within **48 hours** of receiving it. We are looking for signs of good structure, working knowledge, and thoughtful choices—not polish or completeness.

Let us know if you have any issues accessing the starter notebook or dataset.