

# Weekly Report: Nusrat Jahan Nuha-Alpha AI

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## Week-02 (April 28 - May 2)

### 1. Machine Learning Specialization: Advanced Learning Algorithm

- Completed the first two weeks of content from the *Advanced Learning Algorithm* course.
- Reviewed the layers of a neural network.
- Learned forward propagation in depth with hands-on coding examples.
- Studied efficient implementations of neural networks.
- Refined the basics of matrix multiplication through coding exercises.
- Learned the TensorFlow implementation of training a neural network model.
- Reinforced understanding of activation functions such as ReLU and Sigmoid.
- Learned about the integration of softmax regression with neural networks for multiclass classification.

### 2. Object-Oriented Programming (OOP)

- Attended a session on OOP and Data Structures & Algorithms (DSA).

- Reviewed basic concepts of OOP in Python.
- Studied constructors and their types.
- Learned about methods and their types in OOP.
- Understood the importance of the `self` parameter.
- Reviewed the four pillars of OOP:
  - Abstraction
  - Encapsulation
  - Inheritance
  - Polymorphism
- Practiced OOP concepts with hands-on coding examples.
- Explored decorators and dunder methods.

### 3. GitHub

- Attended a session.
- Learned about basic Git operations:
  - `git status`, `git merge`, `git fetch`, `git pull`
  - `git add`
  - `.gitignore` file
  - Local and remote repositories
  - `git stash`, `git stash pop`

#### 4. Agile Methodology

- Attended a session on Agile methods.
- Learned about the scrum method, including:
  - Roles (e.g., Scrum Master, Product Owner, Development Team)
  - Events (e.g., Sprint Planning, Daily Stand-ups, Sprint Review)
- Deliverables (e.g., Product Backlog, Sprint Backlog, Increment)
- Related tools (e.g., Jira, Trailo)