Building a Simple Image Generator using PyTorch

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Project Overview

This project focuses on building a basic Generative Adversarial Network (GAN) using PyTorch to generate simple images. The project will cover defining models, training procedures, and evaluation metrics within a web application framework.

Requirements

• Detailed project specifications
• Comprehensive documentation
• Unit and integration tests
• CI/CD pipeline
• Performance benchmarks
• Develop a Generator model that produces images.
• Develop a Discriminator model that distinguishes between real and generated images.

• Implement a training loop for the GAN.

Deliverables

• Source code with tests
• API documentation
• User documentation
• Developer documentation
• Test results and coverage report
• Performance test results
• Deployment instructions
• Functional PyTorch GAN code.
• A simple web application (e.g., using Flask) to display generated images.
• A report documenting the project, including code, results, and challenges.

Timeline

Week	Description
1	Setup environment, design models, and implement the basic architecture of the Generator and Discriminator.
2	Implement the training loop, integrate basic loss functions, and start experimenting with training parameters.
3	Develop the web application interface to display generated images. Conduct initial testing and refine the model.
4	Finalize the web application, conduct thorough testing, write the final report, and deploy the application.

Technical Requirements

Code_Quality

• test_coverage: >= 80%
• documentation_coverage: >= 90%
• code_style: PEP 8 compliant

Performance

• response_time: < 200ms

- throughput: > 1000 requests/second