

# Python

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# Batch Iterating in Pandas

```
BATCH_SIZE=32

for k,grp in df.groupby(np.arange(len(df))/BATCH_SIZE):
    # grp is a tiny dataframe BATCH_SIZE rows long
    print(k,grp)
```

## References

- [python - How to iterate over consecutive chunks of Pandas dataframe efficiently - Stack Overflow](#)

# Times and Dates in Python

The built in datetime library in Python can be a bit rubbish/difficult to use.

- Pendulum provides an API kind of similar to moment.js although the parsing of text dates is not quite as flexible/powerful.

# Python and Gitea

Tips and tricks for Python and Gitea and CI stuff.

## Use Drone CI for Gitea

I use Drone + Gitea for code versioning and automation - I talk about it [here](#)

## Gitea Package Management

Gitea recently added package management which means that compiled packages and docker containers can be stored alongside code - super useful. By default package hosting is turned off but you can turn it on per-project in the advanced settings section in your project settings:

## Advanced Settings

Wiki ☒ Enable Repository Wiki

☒ Use Built-In Wiki

☐ Use External Wiki

External Wiki URL

Visitors are redirected to the external wiki URL when clicking the wiki tab.

Issues ☒ Enable Repository Issue Tracker

☒ Use Built-In Issue Tracker

☒ Enable Time Tracking

☒ Let Only Contributors Track Time

☒ Enable Dependencies For Issues and Pull Requests

☐ Close an issue via a commit made in a non default branch

☐ Use External Issue Tracker

External Issue Tracker URL

Visitors are redirected to the external issue tracker URL when clicking on the issues tab.

External Issue Tracker URL Format

Use the placeholders {user}, {repo} and {index} for the username, repository name and issue index.

External Issue Tracker Number Format ☐ Numeric #1234 ☐ Alphanumeric ABC-123 , DEFG-234 ☐ Regular Expression (ISSUE-\d+) , ISSUE-(\d+)

Regular Expression Pattern

The first captured group will be used in place of {index}.

Projects ☒ Enable Repository Projects

**Packages ☒ Enable Repository Packages Registry**

Pull Requests ☒ Enable Repository Pull Requests

☐ Ignore Whitespace for Conflicts

☒ Enable Commit Message

# CLI Development

Simon Willison has some [really interesting/useful advice](#) for building command lines ([mirror](#)).

I took a copy of his cookie cutter template and put it [here](#)

# FastAPI

# FastAPI Logging

Inspired by <https://stackoverflow.com/questions/63510041/adding-python-logging-to-fastapi-endpoints-hosted-on-docker-doesnt-display-api>

Set up your logger configuration

```
from pydantic import BaseModel

class LogConfig(BaseModel):
    """Logging configuration to be set for the server"""

    LOGGER_NAME: str = "mycoolapp"
    LOG_FORMAT: str = "%(levelprefix)s | %(asctime)s | %(message)s"
    LOG_LEVEL: str = "DEBUG"

# Logging config
version = 1
disable_existing_loggers = False
formatters = {
    "default": {
        "()": "uvicorn.logging.DefaultFormatter",
        "fmt": LOG_FORMAT,
        "datefmt": "%Y-%m-%d %H:%M:%S",
    },
}
handlers = {
    "default": {
        "formatter": "default",
        "class": "logging.StreamHandler",
        "stream": "ext://sys.stderr",
    },
}
loggers = {
```



```
LOGGER_NAME: {"handlers": ["default"], "level": LOG_LEVEL},  
}
```

Import the configuration and use it:

```
from logging.config import dictConfig  
import logging  
from .config import LogConfig  
  
dictConfig(LogConfig().dict())  
logger = logging.getLogger("mycoolapp")  
  
logger.info("Dummy Info")  
logger.error("Dummy Error")  
logger.debug("Dummy Debug")  
logger.warning("Dummy Warning")
```

# SQLAlchemy and MySQL

Install dependencies for SQLAlchemy and MySQL:

```
pip install sqlalchemy pymysql python-dotenv
```

Set up a `.env` file containing your DB creds:

```
SQL_HOST=localhost
SQL_PASSWORD=blahblah
SQL_USER=readonly
SQL_DB=my_database_name
```

Once you have set up your `.env` file you can load it into your python script

```
import os
import sqlalchemy
import dotenv

dotenv.load_dotenv()

engine =
sqlalchemy.create_engine(f"mysql+pymysql://{env['SQL_USER']}:{env['SQL_PASSWORD']}@{env['SQL_HOST']}
/{env['SQL_DB']}")

query = """SELECT * FROM table_name WHERE col1="blah" LIMIT 1000"""

with engine.connect() as conn:
    df = pd.read_sql(query, conn)

df.head()
```



# Django

Working with the Django web framework and associated libraries

Django

# Deploying Django Apps

## Packaging a Django App in Docker

I wrote a blog about packaging django apps up for shipping in docker.

## Check Utility

Use the `manage.py check` command to ensure that your site is ready for prod usage.

## Resources

[Deploy A Site Live - Matt Layman](#) ([mirror](#))

# Django and PostgreSQL

When working with Django and PostgreSQL it is typically best to use the `psycopg[binary]` package:

```
pip install psycopg[binary]
```

## Migrating From Integer to Duration

If you need to migrate from an integer to a duration column you need to manually tell Postgres what unit of time to use - it won't assume that you mean seconds or minutes etc. Here is an example excerpt from a Gastronom migration.

```
class Migration(migrations.Migration):

    dependencies = [
        migrations.swappable_dependency(settings.AUTH_USER_MODEL),
        ('recipe_app', '0002_nurishifyprofile'),
    ]

    operations = [
        migrations.AlterField(
            model_name='nurishifyprofile',
            name='user',
            field=models.OneToOneField(on_delete=django.db.models.deletion.CASCADE, related_name='profile',
to=settings.AUTH_USER_MODEL),
        ),
        # workaround for migrating postgres
        migrations.RunSQL(
            "ALTER TABLE recipe_app_recipe ALTER COLUMN cooking_time TYPE interval USING cooking_time *
interval '1 second'",
            reverse_sql=migrations.RunSQL.noop
        ),
        migrations.AlterField(
            model_name='recipe',
            name='cooking_time',
```

```
field=models.DurationField(),
),
```

## Testing with Django and Postgres in Gitea Actions

I [wrote a blog post](#) about testing Postgres-based django apps in Gitea. The TL;DR is effectively to install and configure the postgresql server in the runner image like so:

```
name: Run Tests
run-name: ${ { gitea.actor } } is testing out Gitea Actions ☑️
on: [push]
jobs:
  run_tests:
    runs-on: ubuntu-latest
    container: catthehacker/ubuntu:act-latest
    steps:
      - name: Checkout Codebase
        uses: actions/checkout@v3
      - name: Configure and install postgres
        run: |
          apt update
          apt install -y postgresql
          service postgresql start
          sudo -u postgres -s psql -U postgres -d postgres -c "alter user postgres with password 'test123';"
      - uses: pdm-project/setup-pdm@v3
        with:
          python-version: 3.10
          token: ${ secrets.GH_TOKEN }
      - name: Install dependencies
        run: cd ${ { gitea.workspace } } && pdm install

      - name: Run Django tests
        env:
          DB_HOST: 127.0.0.1
          DB_NAME: gastronaut
          DB_USER: postgres
          DB_PASSWORD: test123
        run: |
          cd ${ { gitea.workspace } } && pdm run manage.py test
```





# Python Packaging

## Overview

Historically Python packaging has been a bit of a mess. There were lots of different tools that did some things well and other things very poorly and distributing applications that use Python was a pain.

In 2021, I wrote a detailed post about Python package managers and environment managers and the pros and cons of each. At the time, I made recommendations around Miniconda, [PDM](#) and Poetry. For pure Python projects (that didn't require specialised C libraries or Nvidia toolkits) Poetry remained the best tool until very recently.

## UV: The Modern Solution

Within the last 12 months the whole landscape has shifted. [uv](#) is now the reigning champion when it comes to all things Python packaging related.