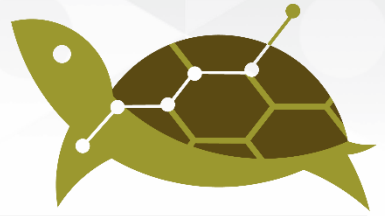


# cashflower CHEAT SHEET



## Quick start

**cashflower** is an open-source Python framework for actuarial cash flow models.

### INSTALLATION

The package is available on PyPI (Python Package Index).

terminal

```
pip install cashflower
```

### CREATE NEW MODEL

python

```
from cashflower import create_model
create_model("my_model")
```

Files structure:

```
├── input.py
├── model.py
├── run.py
└── settings.py
```

Model points, runplan and assumptions

Logic

Start the model

Configuration

### RUN MODEL

terminal

```
cd my_model
python run.py
```

Results

Log file

Diagnostics

## Input

### MODEL POINT SET

Define a model point set:

input.py

```
main = ModelPointSet(data=pd.DataFrame({
    "id": [1, 2, 3],
    "loan": [100_000, 50_000, 200_000],
    "term": [360, 240, 300]
}))
```

Model will be evaluated for each data point.

Use data in the model with the **get()** method:

model.py

```
@variable()
def my_variable(t):
    return main.get("loan")
    ...
```

### RUNPLAN

Define parameters for runs:

input.py

```
runplan = Runplan(data=pd.DataFrame({
    "version": [1, 2, 3],
    "shock": [0, 0.05, -0.05]
}))
```

Start model for the given version:

terminal

```
python run.py 2
```

## Model

Model variables are function with argument **t** or without any argument decorated with **@variable()**.

model.py

```
@variable()
def balance(t):
    if t == 0:
        return main.get("loan")
    return balance(t-1) - principal(t)

@variable()
def monthly_interest_rate():
    return main.get("interest_rate") / 12
```

## Output

Output of the model are projection of future cash flows.

