



**LOG3430 –Méthodes de test et de validation du logiciel**

**Automne 2022**

**TP No. 4 : Automatisation des tests**

**Groupe 3**

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## A.1 :

← Python package

**Commit pour la partie A #1**

Summary

Jobs

- build**

Run details

Usage

Workflow file

**build**  
failed now in 12s

- Set up job
- Run actions/checkout@v3
- Setup Python
- Install packages
- Run tests**

```
1 ▶ Run python manage.py test
11
12 Creating test database for alias 'default'...
13 Found 14 test(s).
14 System check identified no issues (0 silenced).
15 F.....
16 =====
17 FAIL: test_budget_left (budget.tests.test_models.TestModels)
18 -----
19 Traceback (most recent call last):
20   File "/home/runner/work/TP4_budget/TP4_budget/budget/tests/test_models.py", line 40, in test_budget_left
21     self.assertEqual(self.project1.budget_left, 7000)
22   AssertionError: 9884 != 7000
23 -----
24 Ran 14 tests in 0.063s
25
26 FAILED (failures=1)
27 Destroying test database for alias 'default'...
28 Error: Process completed with exit code 1.
```

Ici on peut observer que les étapes exécutées sont les mêmes que celles spécifiées dans le « main.yml » et qu'un test a échoué parmi les 14 exécutés.

## A.2 :

Ligne 1 (name : Python Package) : Donne un nom à notre « workflow » pour l'afficher sur GitHub.

Ligne 2 (on : push) : Spécifie à quel moment le « workflow » est exécuté. Ici, ce sera sur l'évènement « push », donc quand un commit est poussé sur le répertoire distants.

Ligne 3 (jobs :) : Sert à regrouper les différentes tâches effectuées par le « workflow » Python package.

Ligne 4 (build :) : Correspond au nom de l'unique tâche effectuée par le workflow.

Ligne 5 (runs-on :) : Spécifie au « runner » de tests le système d'exploitation à utiliser pour effectuer la tâche.

Ligne 6 (steps :) : Sert à regrouper toutes les étapes de la tâche.

Ligne 7 (- uses: actions/checkout@v3) : Indique au « runner » d'exécuter l'action v3 de l'action actions/checkout@v3, soit un « checkout » du code contenu sur le répertoire, pour s'assurer qu'il exécute le bon code.

Ligne 8 (- name: Setup Python) : Indique le nom de la deuxième étape (le nom de la première étant sous-entendu).

Ligne 9 (uses: actions/setup-python@v4) : Demande l'exécution de l'action v4 de l'action actions/setup-python@v4, qui sert à initialiser la bonne version de Python sur le « runner ».

Ligne 10 (with:) : Spécifie un paramètre pour l'action actions/setup-python@v4.

Ligne 11 (python-version: "3.9") : Spécifie la version de python à installer comme étant la version 3.9.

Ligne 12 (- name: Install packages) : Indique le nom de la troisième étape, celle de l'installation des paquets.

Ligne 13 (run: pip install -r requirements.txt) : Indique au « runner » qu'il doit effectuer la commande pip install -r requirements.txt dans sa console, lui permettant d'utiliser pip afin d'installer les paquets nécessaires au bon fonctionnement du code.

Ligne 14 (- name: Run tests) : Indique le nom de la quatrième étape, celle de l'exécution des tests.

Ligne 15 (run: python manage.py test) : Indique au « runner » qu'il doit effectuer la commande python manage.py test dans sa console, lui permettant d'exécuter les tests.

## B.1 :

```
PS D:\GitHub Stuff\TP4_budget> git bisect start
PS D:\GitHub Stuff\TP4_budget> git bisect good e4cfc6f77ebbe2e23550ddab682316ab4ce1c03c
PS D:\GitHub Stuff\TP4_budget> git bisect bad c1a4be04b972b6c17db242fc37752ad517c29402
Bisecting: 6 revisions left to test after this (roughly 3 steps)
[33827ba712f81ebc7c1fc935e8115e9a49065a9a] Minor change
```

```
PS D:\GitHub Stuff\TP4_budget> python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.033s

OK
Destroying test database for alias 'default'...
PS D:\GitHub Stuff\TP4_budget> git bisect good 33827ba712f81ebc7c1fc935e8115e9a49065a9a
Bisecting: 3 revisions left to test after this (roughly 2 steps)
[bfdccab909c32635457d41eeb6e7fed322026170] Minor change
PS D:\GitHub Stuff\TP4_budget> python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.032s

OK
Destroying test database for alias 'default'...
PS D:\GitHub Stuff\TP4_budget> git bisect good bfdccab909c32635457d41eeb6e7fed322026170
Bisecting: 1 revision left to test after this (roughly 1 step)
[1ca217161f9f3c0485c6c7e983e0b7fb77170910] Adding minor testing
PS D:\GitHub Stuff\TP4_budget> python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
F.....
=====
FAIL: test_budget_left (budget.tests.test_models.TestModels)
-----
Traceback (most recent call last):
  File "D:\GitHub Stuff\TP4_budget\budget\tests\test_models.py", line 40, in test_budget_left
    self.assertEqual(self.project1.budget_left, 7000)
AssertionError: 9884 != 7000
-----
Ran 14 tests in 0.035s

FAILED (failures=1)
Destroying test database for alias 'default'...
PS D:\GitHub Stuff\TP4_budget> git bisect bad 1ca217161f9f3c0485c6c7e983e0b7fb77170910
Bisecting: 0 revisions left to test after this (roughly 0 steps)
[1d8748281263e8e7efe7b85c828cd3f600d96bfc] Minor change
```

```

PS D:\GitHub Stuff\TP4_budget> python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
F.....
=====
FAIL: test_budget_left (budget.tests.test_models.TestModels)
-----
Traceback (most recent call last):
  File "D:\GitHub Stuff\TP4_budget\budget\tests\test_models.py", line 40, in test_budget_left
    self.assertEqual(self.project1.budget_left, 7000)
AssertionError: 9884 != 7000
-----

Ran 14 tests in 0.033s

FAILED (failures=1)
Destroying test database for alias 'default'...
PS D:\GitHub Stuff\TP4_budget> git bisect bad 1d8748281263e8e7efe7b85c828cd3f600d96bfc
1d8748281263e8e7efe7b85c828cd3f600d96bfc is the first bad commit
commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc
Author: dgumenyuk <gumenyuk98@gmail.com>
Date:   Mon Oct 31 12:51:32 2022 -0400

    Minor change

    budget/models.py | 5 +++--
    1 file changed, 3 insertions(+), 2 deletions(-)

```

```

PS D:\GitHub Stuff\TP4_budget> git bisect reset
Previous HEAD position was 1d87482 Minor change
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

```

Le commit qui a introduit le bug est le commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc.

Premièrement, on examine le commit 33827ba712f81ebc7c1fc935e8115e9a49065a9a qui se trouve entre le dernier commit qu'on sait être bon et le dernier commit où on sait que des tests échouent, soit le commit e4cfc6f77ebbe2e23550ddab682316ab4ce1c03c et le commit c1a4be04b972b6c17db242fc37752ad517c29402. Les tests nous révèlent que le commit est bon, donc il devient le dernier commit qu'on sait être bon et on répète le processus en utilisant ce dernier comme nouvelle borne gauche de notre intervalle. On examine ainsi le commit bfdccab909c32635457d41eeb6e7fed322026170 qui se trouve au centre de notre intervalle. Les tests nous révèlent que ce dernier est bon, donc on remplace la borne gauche de notre intervalle de commit et on répète le processus. On examine ainsi le commit 1ca217161f9f3c0485c6c7e983e0b7fb77170910 qui se trouve au centre de notre intervalle. Les tests nous révèlent que ce dernier est mauvais, donc on remplace la borne droite de notre intervalle de commit et on répète le processus. On examine ainsi le commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc qui est le seul commit se trouvant dans notre

intervalle. Les tests nous révèlent que ce dernier est mauvais, donc il s'agit du premier mauvais commit car il n'y a pas d'autre mauvais commit qui le précède.

## B.2 :

```
PS D:\GitHub Stuff\TP4_budget> git bisect start c1a4be04b972b6c17db242fc37752ad517c29402 e4cfc6f77ebbe2e23550ddab682316ab4ce1c03c
Bisecting: 6 revisions left to test after this (roughly 3 steps)
[33827ba712f81ebc7c1fc935e8115e9a49065a9a] Minor change
PS D:\GitHub Stuff\TP4_budget> git bisect run python manage.py test
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.033s

OK
Destroying test database for alias 'default'...
Bisecting: 3 revisions left to test after this (roughly 2 steps)
[bfdccab909c32635457d41eeb6e7fed322026170] Minor change
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.033s

OK
Destroying test database for alias 'default'...
Bisecting: 1 revision left to test after this (roughly 1 step)
[1ca217161f9f3c0485c6c7e983e0b7fb77170910] Adding minor testing
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
F.....
-----
FAIL: test_budget_left (budget.tests.test_models.TestModels)
-----
Traceback (most recent call last):
  File "D:\GitHub Stuff\TP4_budget\budget\tests\test_models.py", line 40, in test_budget_left
    self.assertEqual(self.project1.budget_left, 7000)
AssertionError: 9884 != 7000
-----
Ran 14 tests in 0.038s

FAILED (failures=1)
Destroying test database for alias 'default'...
```

```

Bisecting: 0 revisions left to test after this (roughly 0 steps)
[1d8748281263e8e7efe7b85c828cd3f600d96bfc] Minor change
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
F.....
=====
FAIL: test_budget_left (budget.tests.test_models.TestModels)
-----
Traceback (most recent call last):
  File "D:\GitHub Stuff\TP4_budget\budget\tests\test_models.py", line 40, in test_budget_left
    self.assertEqual(self.project1.budget_left, 7000)
AssertionError: 9884 != 7000
-----

Ran 14 tests in 0.037s

FAILED (failures=1)
Destroying test database for alias 'default'...
1d8748281263e8e7efe7b85c828cd3f600d96bfc is the first bad commit
commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc
Author: dgumenyuk <gumenyuk98@gmail.com>
Date:   Mon Oct 31 12:51:32 2022 -0400

    Minor change

    budget/models.py | 5 +++--
    1 file changed, 3 insertions(+), 2 deletions(-)
bisect run success
PS D:\GitHub Stuff\TP4_budget> git bisect reset
Previous HEAD position was 1d87482 Minor change
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

```

Le commit qui a introduit le bug est le commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc, soit le même commit qu'en B.1.

### B.3 :

```

import os

os.system('git bisect start c1a4be04b972b6c17db242fc37752ad517c29402 e4cfc6f77ebbe2e23550ddab682316ab4ce1c03c')
os.system('git bisect run python manage.py test')
os.system('git bisect reset')

```

```

PS D:\GitHub Stuff\TP4_budget> python myscript.py
Bisecting: 6 revisions left to test after this (roughly 3 steps)
[33827ba712f81ebc7c1fc935e8115e9a49065a9a] Minor change
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.036s

OK
Destroying test database for alias 'default'...
Bisecting: 3 revisions left to test after this (roughly 2 steps)
[bfdccab909c32635457d41eeb6e7fed322026170] Minor change
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.037s

OK
Destroying test database for alias 'default'...
Bisecting: 1 revision left to test after this (roughly 1 step)
[1ca217161f9f3c0485c6c7e983e0b7fb77170910] Adding minor testing
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
F.....
=====
FAIL: test_budget_left (budget.tests.test_models.TestModels)
-----
Traceback (most recent call last):
  File "D:\GitHub Stuff\TP4_budget\budget\tests\test_models.py", line 40, in test_budget_left
    self.assertEqual(self.project1.budget_left, 7000)
AssertionError: 9884 != 7000

-----
Ran 14 tests in 0.036s

FAILED (failures=1)
Destroying test database for alias 'default'...

```



```
Bisecting: 0 revisions left to test after this (roughly 0 steps)
[1d8748281263e8e7efe7b85c828cd3f600d96bfc] Minor change
running python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
F.....
=====
FAIL: test_budget_left (budget.tests.test_models.TestModels)
-----
Traceback (most recent call last):
  File "D:\GitHub Stuff\TP4_budget\budget\tests\test_models.py", line 40, in test_budget_left
    self.assertEqual(self.project1.budget_left, 7000)
AssertionError: 9884 != 7000

-----
Ran 14 tests in 0.040s

FAILED (failures=1)
Destroying test database for alias 'default'...
1d8748281263e8e7efe7b85c828cd3f600d96bfc is the first bad commit
commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc
Author: dgumenyuk <gumenyuk98@gmail.com>
Date: Mon Oct 31 12:51:32 2022 -0400

    Minor change

    budget/models.py | 5 +++--
    1 file changed, 3 insertions(+), 2 deletions(-)
bisect run success
Previous HEAD position was 1d87482 Minor change
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
```

## C.1 :

```
name: Python package
on: [push]
jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v3
        with:
          fetch-depth: '0'
      - name: Setup Python
        uses: actions/setup-python@v4
        with:
          python-version: "3.9"
      - name: Install packages
        run: pip install -r requirements.txt
      - name: Run tests
        run: python myscript.py
```

```
import os

os.system('git bisect start c1a4be04b972b6c17db242fc37752ad517c29402 e4cfc6f77ebbe2e23550ddab682316ab4ce1c03c')
os.system('git bisect run python manage.py test')
os.system('git bisect reset')
```

Nous avons dû mettre fetch-depth à 0 pour forcer l'action à aller chercher l'historique de tous les commits, ce qui permet à bisect de fonctionner correctement.

## C.2 :

Summary

Jobs

build

Run details

Usage

Workflow file

build

succeeded 4 minutes ago in 24s

```
57 FAILED (failures=1)
58 Destroying test database for alias 'default'...
59 Bisecting: 0 revisions left to test after this (roughly 0 steps)
60 [1d8748281263e8e7efe7b85c828cd3f600d96bfc] Minor change
61 running 'python' 'manage.py' 'test'
62 Creating test database for alias 'default'...
63 Found 14 test(s).
64 System check identified no issues (0 silenced).
65 F.....
66 =====
67 FAIL: test_budget_left (budget.tests.test_models.TestModels)
68 -----
69 Traceback (most recent call last):
70   File "/home/runner/work/TP4_budget/TP4_budget/budget/tests/test_models.py", line 40, in test_budget_left
71     self.assertEqual(self.project1.budget_left, 7000)
72   AssertionError: 9884 != 7000
73
74 -----
75 Ran 14 tests in 0.045s
76
77 FAILED (failures=1)
78 Destroying test database for alias 'default'...
79 1d8748281263e8e7efe7b85c828cd3f600d96bfc is the first bad commit
80 commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc
81 Author: dgumenyuk <gumenyuk98@gmail.com>
82 Date:   Mon Oct 31 12:51:32 2022 -0400
83
84     Minor change
85
86 budget/models.py | 5 +++-
87 1 file changed, 3 insertions(+), 2 deletions(-)
88 Previous HEAD position was 1d87482 Minor change
89 Switched to branch 'main'
90 bisect found first bad commitYour branch is up to date with 'origin/main'.
```

> ☒ Post Setup Python

> ☒ Post Run actions/checkout@v3

> ☒ Complete job

Le commit qui a introduit le bug est le commit 1d8748281263e8e7efe7b85c828cd3f600d96bfc.

## D.1 :

```
15     @property
16     def budget_left(self):
17         expense_list = Expense.objects.filter(project=self)
18         total_expense_amount = 0
19
20         total_temp = 0
21         budget_temp = 100
22         expense_list_temp = [10, 11, 12, 14, 11]
23         for expenses in expense_list_temp:
24             total_temp += expenses
25         expense_amount = total_temp
26         new_budget_temp = budget_temp - expense_amount
27
28
29         for expense in expense_list:
30             total_expense_amount += expense.amount
31
32         # temporary solution, because the form currently only allows integer amounts
33         total_expense_amount = int(total_expense_amount)
34         return self.budget - total_expense_amount
```

models.py 1 of 1 change			
27	27		
28	28		
29	29		for expense in expense_list:
30			total_expense_amount += expense.amount
	30		total_expense_amount += expense.amount
31	31		

```
Your branch is up to date with 'origin/main'.
PS D:\GitHub Stuff\TP4_budget> python manage.py test
Found 14 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.....
-----
Ran 14 tests in 0.035s

OK
Destroying test database for alias 'default'...
```