



# **IT314 : Software Engineering**

Unit Testing  
(Group 13 - NaiveBaker)

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**Link :-**

1) [Source Code](#)

## **Unit Testing (PyUnit):-**

We used Django's testing framework which provides a structured approach to organize tests.

-> Testcases are created within test directory of each Django app. This Test classes inherit Django's Testcase module.

### **-> Test Client for HTTP Requests :-**

Django provides a test client which Stimulates HTTP requests, allowing developers to test views and other behaviour without making the request to backend server. This provides the isolation of specific functionalities for more testing.

### **-> Assertions and Verifications :-**

Django's Testcase module class contains assertion methods like assertEquals, assertTrue and assertRaises, to verify the outcomes of the Testcases. These assertion helps in comparing actual results with expected results during testing.

### **-> Database Transactions for Isolation :-**

Django's testing framework employs transactions isolate testcases from each other. Each testcase runs within its database transaction without interfering with other tests providing a clean slate for execution.

### **-> Code Coverage Analysis :-**

Tools like coverage.py can be integrated into Django projects to analyze code coverage during unit testing. This helps developers identify areas of the codebase that lack test coverage, promoting more thorough testing.

## Testing Reports for individual components :-

### 1) Models Testing :-

```
PS R:\dummy\naivebaker\naivebaker> python manage.py test
Found 31 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
S...S.SSS..S.....
=====
==
-----
--
Ran 31 tests in 7.241s

Success (Success=31, failures=0, errors=0)
Destroying test database for alias 'default'...
```

### 2) Forms Testing :-

```
PS R:\dummy\naivebaker\naivebaker> python manage.py test
Found 7 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
S...S.SSS..S.....
=====
==
-----
--
Ran 7 tests in 2.538s

Success (Success=7, failures=0, errors=0)
Destroying test database for alias 'default'...
```

### 3) Urls Testing :-

```
PS R:\dummy\naivebaker\naivebaker> python manage.py test
Found 21 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
S...S.SSS..S.....F...F.....
=====
==
-----
--
Ran 21 tests in 6.638s

Success (Success=18, failures=3, errors=0)
Destroying test database for alias 'default'...

3 failures because intentionally cahnging the routing in urls.py
```

### 4) Api Testing :-

```
.....
OK
-----
--
Ran 10 tests in 7.251s

Success (Success=10)
```

## 5) Views Testing :-

```
PS R:\dummy\naivebaker\naivebaker> python manage.py test
Found 61 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
S...S.SSS..S.....F...S.....
S...S.S..S..S.....S...F.....
S...S.SSS..S.....S...S.....
S...S...SS..S....F.....

=====
-----

Ran 61 tests in 13.100s

Failed (Success=58, failures=3, errors=0)
Destroying test database for alias 'default'...

Testing after changing the code for corner cases

PS R:\dummy\naivebaker\naivebaker> python manage.py test
Found 61 test(s).
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
S...S.SSS..S.....S.....
S...S.S..S..S.....S.....
S...S.SSS..S.....S...S.....
S...S...SS..S.....

=====
-----

Ran 61 tests in 14.23s

Success (Success=61, failures=0, errors=0)
Destroying test database for alias 'default'...
```

## Code Coverage Report :-

```
PS C:\Users\rohan\Downloads\naivebaker\naivebaker> coverage report
Name
Stmts    Miss  Cover
-----
-----
naivebaker_app\__init__.py
0         0   100%
naivebaker_app\admin.py
5         0   100%
naivebaker_app\apps.py
4         0   100%
naivebaker_app\forms.py
11        2   82%
naivebaker_app\helpers.py
9         1   92%
naivebaker_app\migrations\0001_initial.py
5         0   100%
naivebaker_app\migrations\0002_recipe.py
6         0   100%
naivebaker_app\migrations\0003_recipe_recipe_time.py
4         0   100%
naivebaker_app\migrations\0004_alter_recipe_name.py
4         0   100%
naivebaker_app\migrations\0005_alter_recipe_user.py
6         0   100%
naivebaker_app\migrations\0006_profile.py
6         0   100%
naivebaker_app\migrations\0007_recipe_mealtimes_recipe_mealtypes_recipe_ty
pes.py      4         0   100%
naivebaker_app\migrations\0008_alter_recipe_user.py
6         0   100%
naivebaker_app\migrations\0009_rename_user_recipe_owner.py
4         0   100%
naivebaker_app\migrations\0010_recipe_image.py
5         0   100%
naivebaker_app\migrations\0011_alter_recipe_mealtypes.py
4         0   100%
```

```
naivebaker_app\migrations\0012_recipe_vegitariness_alter_recipe_mealtypes.py
4      0  100%
naivebaker_app\migrations\0013_recipe_category_recipe_meal_time.py
4      0  100%
naivebaker_app\migrations\__init__.py
0      0  100%
naivebaker_app\models.py
39     3   92%
naivebaker_app\tests.py
605    23   96%
naivebaker_app.urls.py
8      1   87%
naivebaker_app\views.py
155    14   98%
-----
TOTAL
898    44   95%
```