

Unit Testing Report

- We are using Cunit to automate unit testing for the “file validation” function and “checking results” function.
- We are using makefile to initiate compiling and prepare executables of the respective functions.

Unit Test Cases1_6 for file validation function:

- 3 Sunny cases (Valid input files) and 3 Rainy cases (Invalid input files).

```
void testSunnyCases1(void)
{
CU_ASSERT_EQUAL(validation("data/unit_testcases/testCase1.txt"),1);
CU_ASSERT_EQUAL(validation("data/unit_testcases/testCase2.txt"),1);
CU_ASSERT_EQUAL(validation("data/unit_testcases/testCase3.txt"),1);
}
void testRainyCases1(void)
{
CU_ASSERT_EQUAL(validation("data/unit_testcases/testCase4.txt"),0);
CU_ASSERT_EQUAL(validation("data/unit_testcases/testCase5.txt"),0);
CU_ASSERT_EQUAL(validation("data/unit_testcases/testCase6.txt"),0);
}
```

Unit Test Cases7_12 for checking result function:

- 3 Sunny cases (Valid existing keywords with the exact number of times it appears in various projects) and 3 Rainy cases (Passing invalid keywords or invalid number of appearances or both).

```
void testSunnyCases2(void)
{
CU_ASSERT_EQUAL(result_Valid("Computer Aided Chemical Engineering"),3);
CU_ASSERT_EQUAL(result_Valid("Pipeline Scheduling"),2);
CU_ASSERT_EQUAL(result_Valid("Transportation"),3);
}
void testRainyCases2(void)
{
CU_ASSERT_EQUAL(result_Valid("Transporthhhhh"),0);
CU_ASSERT_EQUAL(result_Valid("Capgemini"),0);
CU_ASSERT_EQUAL(result_Valid("testCase"),0);
}
```

Execution of makefile:

```
91970@YashwanthVK18 ~/CUnit_Testing
$ make
gcc -o bin/Main_testdriver.o -c src/Main_testdriver.c
gcc -o bin/valid.o -c src/valid.c
gcc -o bin/valid_suite.o -c src/valid_suite.c
gcc -o bin/result.o -c src/result.c
gcc -o bin/result_suite.o -c src/result_suite.c
gcc -o bin/file.tests bin/Main_testdriver.o bin/valid.o bin/valid_suite.o bin/re
sult.o bin/result_suite.o -lcunit
```

Passing Unit Test Cases1_12:

```
91970@YashwanthVK18 ~/CUnit_Testing
$ bin/file.tests

CUnit - A unit testing framework for C - Version 2.1-3
http://cunit.sourceforge.net/

Suite: Suite Valid file
  Test: test of valid() in Sunny cases ...passed
  Test: test of valid() in Rainy cases ...passed
Suite: Suite Valid file
  Test: test of result_valid() in Sunny cases ...passed
  Test: test of result_Valid() in Rainy cases ...passed

Run Summary:   Type   Total   Ran   Passed   Failed   Inactive
               suites    2      2      n/a      0        0
               tests    4      4       4       0        0
               asserts  12    12    12       0      n/a

Elapsed time =   0.000 seconds
```

References:

The header functions of both functions and their suites are stored in include directory of CUnit_Testing folder, whereas they are stored at src directory. The src directory also includes the testing function “Main_testdriver”. All the executable files are stored in bin directory. The report of the cunit testing done here is stored in reports sub directory of data directory.