TEST PLAN

Framework used: Unity

As the System has 7 functions namely

- optimum_load
- energy_output
- energy_copper
- energy_iron
- cost
- efficiency
- display

All the functions except display has been tested, since display function displays the parameters calculated by all other functions reducing the need to test display function.

Testcase:1

void test_case1(void)

{TEST_ASSERT_EQUAL_FLOAT(105.0000,optimum_load(1.3,1.0,120.0));}

int main()

{UNITY_BEGIN();

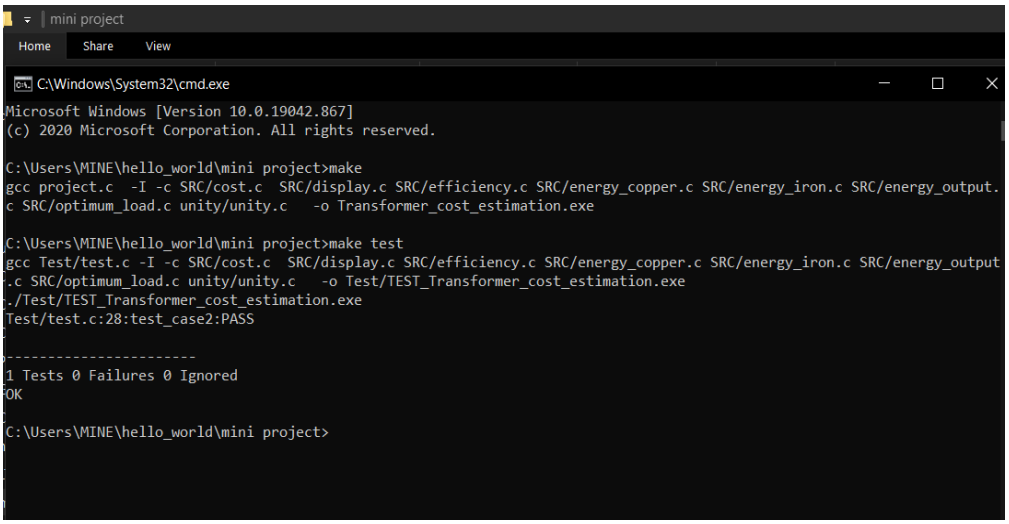
RUN_TEST(test_case1);

return UNITY_END();}

```
C:\Users\MINE\hello_world\mini project>make
gcc project.c  -I -c SRC/cost.c  SRC/display.c SRC/efficiency.c SRC/energy_copper.c SRC/energy_iron.c SRC/energy_output.
c SRC/optimum_load.c unity/unity.c   -o Transformer_cost_estimation.exe

C:\Users\MINE\hello_world\mini project>make test
gcc Test/test.c -I -c SRC/cost.c  SRC/display.c SRC/efficiency.c SRC/energy_copper.c SRC/energy_iron.c SRC/energy_output
.c SRC/optimum_load.c unity/unity.c   -o Test/TEST_Transformer_cost_estimation.exe
./Test/TEST_Transformer_cost_estimation.exe
Test/test.c:27:test_case1:PASS

-----------------------
1 Tests 0 Failures 0 Ignored
OK

C:\Users\MINE\hello_world\mini project>
```

Testcase:2

```
void test_case2(void)
{TEST_ASSERT_EQUAL_FLOAT(0.0000,optimum_load(0.0,-   1.0,120.0));}
int main()
{UNITY_BEGIN();
 RUN_TEST(test_case2);
 return UNITY_END();}
```



Testcase 3:

```
void test_case3(void)
{TEST_ASSERT_EQUAL_FLOAT(192000.0000,energy_output(120.0,1.0,0.8,
2000.0));}
int main()
{UNITY_BEGIN();
 RUN_TEST(test_case3);
 return UNITY_END();}
```

```
C:\Users\MINE\hello_world\mini project>make
gcc project.c  -I -c SRC/cost.c  SRC/display.c SRC/efficiency.c SRC/energy_copper.c SRC/energy_iron.c SRC/energy_output.
c SRC/optimum_load.c unity/unity.c   -o Transformer_cost_estimation.exe

C:\Users\MINE\hello_world\mini project>make test
gcc Test/test.c -I -c SRC/cost.c  SRC/display.c SRC/efficiency.c SRC/energy_copper.c SRC/energy_iron.c SRC/energy_output
.c SRC/optimum_load.c unity/unity.c   -o Test/TEST_Transformer_cost_estimation.exe
./Test/TEST_Transformer_cost_estimation.exe
Test/test.c:29:test_case3:PASS

-----------------------
1 Tests 0 Failures 0 Ignored
OK

C:\Users\MINE\hello_world\mini project>
```

Testcase 4:

void test_case4(void)

{TEST_ASSERT_EQUAL_FLOAT(3000.0000,energy_copper(1.0,1.5,2000.0);
}

int main()

{UNITY_BEGIN();

RUN_TEST(test_case4);

return UNITY_END();}

```
C:\Users\MINE\hello_world\mini project>make
gcc project.c  -I -c SRC/cost.c  SRC/display.c SRC/efficiency.c SRC/energy_copper.c SRC/energy_iron.c SRC/energy_output.
c SRC/optimum_load.c unity/unity.c   -o Transformer_cost_estimation.exe

C:\Users\MINE\hello_world\mini project>make test
gcc Test/test.c -I -c SRC/cost.c  SRC/display.c SRC/efficiency.c SRC/energy_copper.c SRC/energy_iron.c SRC/energy_output
.c SRC/optimum_load.c unity/unity.c   -o Test/TEST_Transformer_cost_estimation.exe
./Test/TEST_Transformer_cost_estimation.exe
Test/test.c:30:test_case4:PASS

-----------------------
1 Tests 0 Failures 0 Ignored
OK

C:\Users\MINE\hello_world\mini project>
```

Testcase 5:

void test_case5(void)

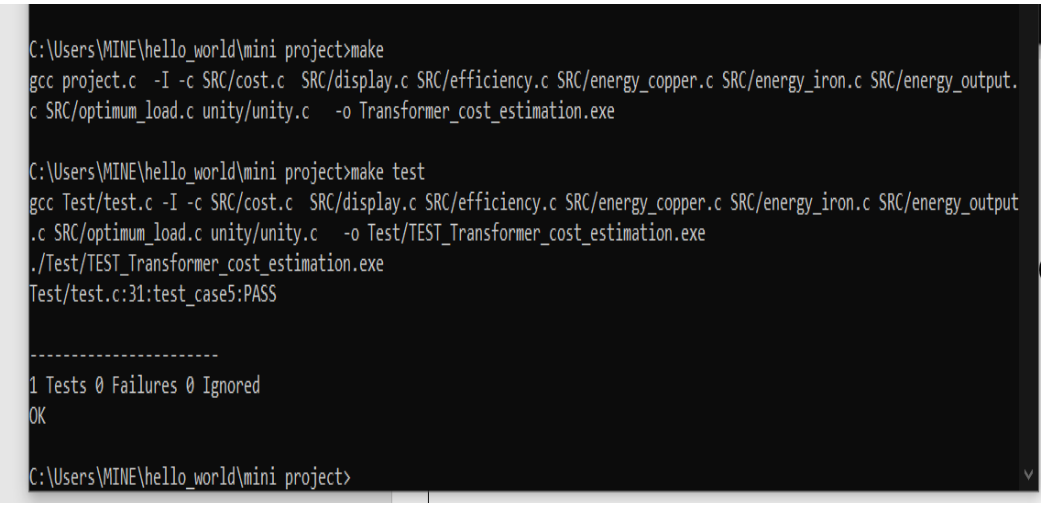
{TEST_ASSERT_EQUAL_FLOAT(8760.0000,energy_iron(1.0));}

int main()

{UNITY_BEGIN();

RUN_TEST(test_case5);

return UNITY_END();}



Testcase 6:

void test_case6(void)

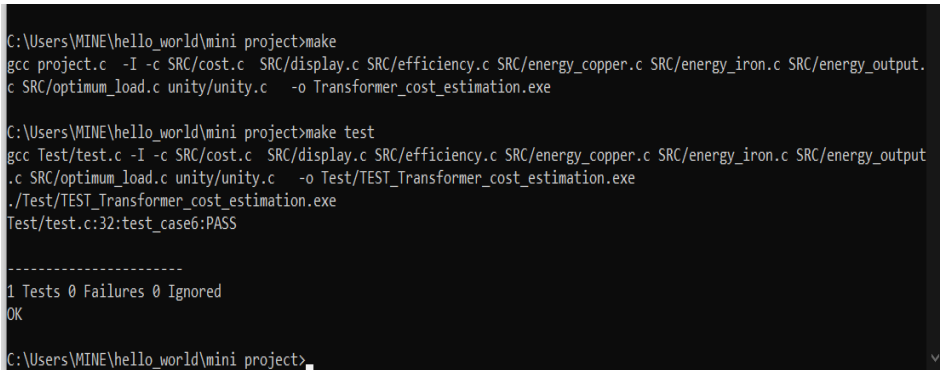
{TEST_ASSERT_EQUAL_FLOAT(713160.0000,cost(192000.0,3000.0,8760.0
,3.5));}

int main()

{UNITY_BEGIN();

RUN_TEST(test_case6);

return UNITY_END();}



Testcase 7:

void test_case7(void)

{TEST_ASSERT_EQUAL_FLOAT(94.0000,efficiency(192000.0,3000.0,8760.0));}

int main()

{UNITY_BEGIN();

RUN_TEST(test_case7);

return UNITY_END();}