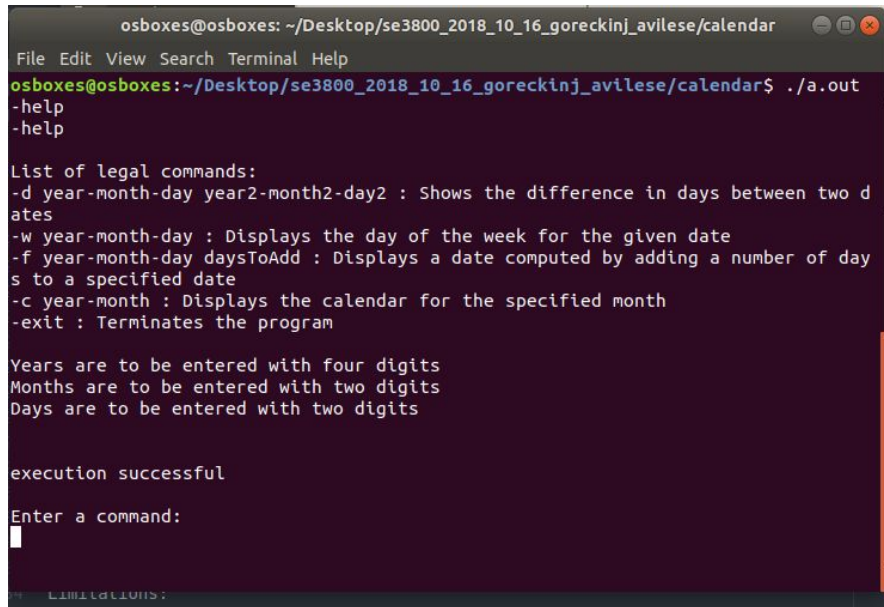


Exercise 4

Nicholas Gorecki ad Eduardo Aviles

Gitlab repo: https://gitlab.com/Gorecki.Nicholas/se3800_2018_10_16_goreckinj_avilese

System start screen:



```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help
osboxes@osboxes:~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar$ ./a.out
-help
-help

List of legal commands:
-d year-month-day year2-month2-day2 : Shows the difference in days between two d
ates
-w year-month-day : Displays the day of the week for the given date
-f year-month-day daysToAdd : Displays a date computed by adding a number of day
s to a specified date
-c year-month : Displays the calendar for the specified month
-exit : Terminates the program

Years are to be entered with four digits
Months are to be entered with two digits
Days are to be entered with two digits

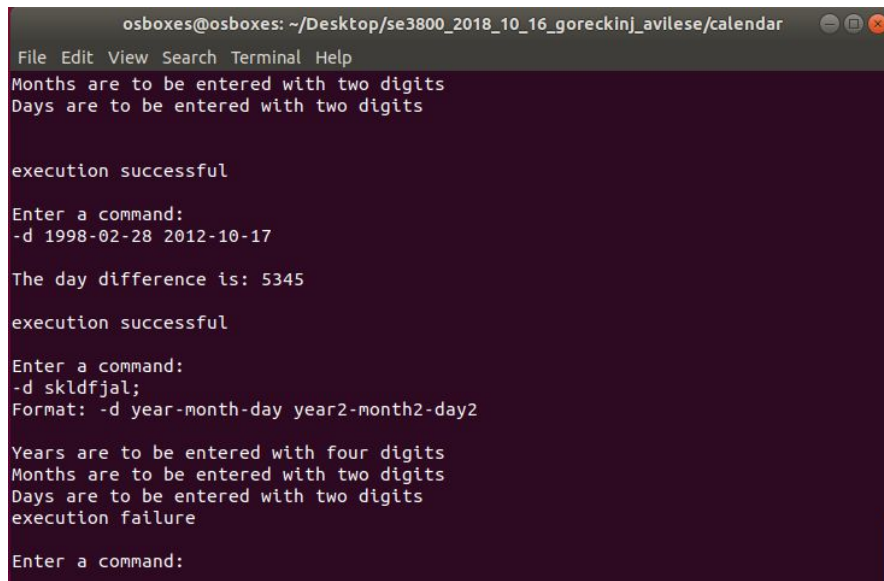
execution successful

Enter a command:

```

-d command success and misformat

This one coincides with our -d command story, the following error one also follows that story



```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help
Months are to be entered with two digits
Days are to be entered with two digits

execution successful

Enter a command:
-d 1998-02-28 2012-10-17

The day difference is: 5345

execution successful

Enter a command:
-d skldfjal;
Format: -d year-month-day year2-month2-day2

Years are to be entered with four digits
Months are to be entered with two digits
Days are to be entered with two digits
execution failure

Enter a command:

```

-w Command success

This one coincides with our -w command story, the following error one also follows that story

```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help
ates
-w year-month-day : Displays the day of the week for the given date
-f year-month-day daysToAdd : Displays a date computed by adding a number of days to a specified date
-c year-month : Displays the calendar for the specified month
-exit : Terminates the program

Years are to be entered with four digits
Months are to be entered with two digits
Days are to be entered with two digits

execution successful

Enter a command:
-w 2018-10-17

Week day for date 2018-10-17 is: Wednesday

execution successful

Enter a command:

```

-w command misinputs

```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help
Week day for date 2018-10-17 is: Wednesday

execution successful

Enter a command:
-w 2018-55-23

Month 55 must be in the following scope [1, 12]

execution successful

Enter a command:
-w saldj
Format: -w year-month-day

Years are to be entered with four digits
Months are to be entered with two digits
Days are to be entered with two digits
execution failure

Enter a command:

```

-f command success

This one coincides with our -f command story, the following error one also follows that story

```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help

execution successful

Enter a command:
-c 2019-10

| S| M| T| W| R| F| S|
|  | | 1| 2| 3| 4| 5|
| 6| 7| 8| 9|10|11|12|
|13|14|15|16|17|18|19|
|20|21|22|23|24|25|26|
|27|28|29|30|31|  |

execution successful

Enter a command:
-f 2018-10-17 3

The date now is 2018-10-20

execution successful

Enter a command:
```

-f command failure

```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help

Years are to be entered with four digits
Months are to be entered with two digits
Days are to be entered with two digits
execution failure

Enter a command:
-f 2018-55-69
Format: -f year-month-day daysToAdd

Years are to be entered with four digits
Months are to be entered with two digits
Days are to be entered with two digits
execution failure

Enter a command:
-f 2018-56-98 98

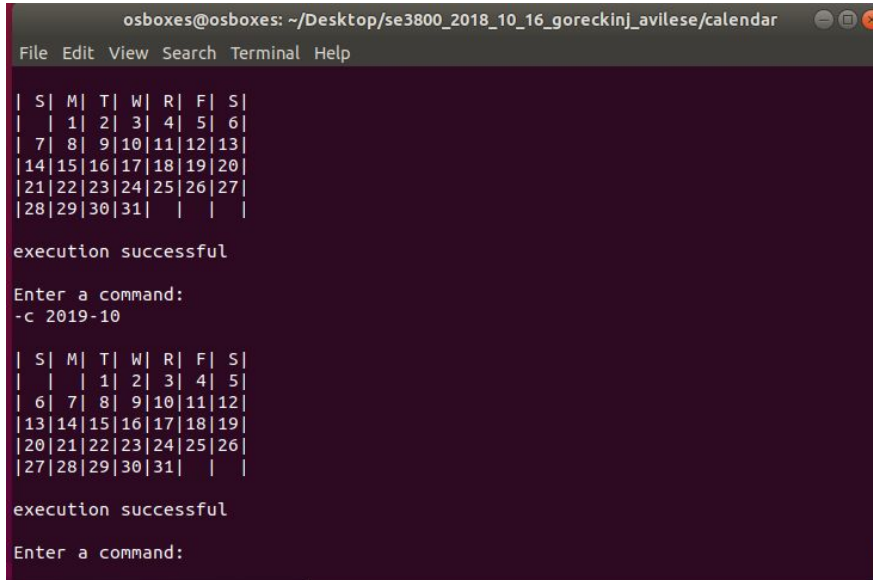
Month 56 must be in the following scope [1, 12]

execution successful

Enter a command:
```

-c (our added command)

This is our added command. We decided to show the calendar of the specified year and month, which was an option given in exercise 3 .pdf to implement. We show what days of that month are in what weekday with a neat little table.



```
osboxes@osboxes: ~/Desktop/se3800_2018_10_16_goreckinj_avilese/calendar
File Edit View Search Terminal Help

| S| M| T| W| R| F| S|
|  | 1| 2| 3| 4| 5| 6|
| 7| 8| 9|10|11|12|13|
|14|15|16|17|18|19|20|
|21|22|23|24|25|26|27|
|28|29|30|31|  |  |
execution successful

Enter a command:
-c 2019-10

| S| M| T| W| R| F| S|
|  | 1| 2| 3| 4| 5|
| 6| 7| 8| 9|10|11|12|
|13|14|15|16|17|18|19|
|20|21|22|23|24|25|26|
|27|28|29|30|31|  |
execution successful

Enter a command:
```

Testing:

Running all tests with make test:

```

[-----] 1 test from fcmd
[ RUN    ] fcmd.noError
[      OK ] fcmd.noError (0 ms)
[-----] 1 test from fcmd (1 ms total)

[-----] 1 test from fcmd_e
[ RUN    ] fcmd_e.error
[      OK ] fcmd_e.error (0 ms)
[-----] 1 test from fcmd_e (0 ms total)

[-----] 1 test from ccmd
[ RUN    ] ccmd.noError
[      OK ] ccmd.noError (0 ms)
[-----] 1 test from ccmd (0 ms total)

[-----] 1 test from ccmd_e
[ RUN    ] ccmd_e.error
[      OK ] ccmd_e.error (0 ms)
[-----] 1 test from ccmd_e (0 ms total)

[-----] Global test environment tear-down
[=====] 8 tests from 8 test cases ran. (2 ms total)
[ PASSED ] 8 tests.
osboxes@osboxes:~/se3800_2018_10_16_goreckinj_avilese/calendar$

```

Approach on testing:

We had 8 unit tests, two for each command. We had one unit test into testing valid values and one for invalid values. Our approach was more aggressive because we tried using every possible type of differentiation to try to crash or make the program give invalid output. We did boundary value analysis and invalid formats with the dates in every command to make sure that error checking was compensated in every possible way. The one thing about the testing though is that we had to make sure the returned value was equal to a long string, which made the testing a little weird and probably not the best, but it was feasible.

Example view of tests:

```
//normal check
EXPECT_EQ("\nThe day difference is: 365", cnt->dateDifference("-d 2018-05-14 2019-05-14"))
//boundary checks
EXPECT_EQ("\nThe day difference is: 1", cnt->dateDifference("-d 2018-05-14 2018-05-15"))
EXPECT_EQ("\nThe day difference is: 0", cnt->dateDifference("-d 2018-05-14 2018-05-14"))
}
//-d command errors
TEST(dcnd_e, error)
{
    //year less than or equal to 1752
    EXPECT_EQ("\nYear 1752 must be greater than 1752\n", cnt->dateDifference("-d 1752-05-14 2018-05-14"))
    //month not right
    EXPECT_EQ("\nMonth 0 must be in the following scope [1, 12]\n", cnt->dateDifference("-d 2018-00-14 2018-05-14"))
    //day in month not right
    EXPECT_EQ("\nDay 29 must be in the following scope [1, 28]\n", cnt->dateDifference("-d 2018-05-29 2018-05-14"))
    //start date is greater than end dates
    EXPECT_EQ("\nEnd date cannot be less than start date\n", cnt->dateDifference("-d 2018-05-14 2018-05-13"))
}

//-w command no errors
TEST(wcmd, noError)
{
    //normal check
    EXPECT_EQ("\nWeek day for date 2018-10-16 is: Tuesday\n", cnt->currentDay("-w 2018-10-16"))
    //normal check
    EXPECT_EQ("\nWeek day for date 2018-10-19 is: Friday\n", cnt->currentDay("-w 2018-10-19"))
}

//-w command errors
TEST(wcmd_e, error)
{
    //year less than or equal to 1752
    EXPECT_EQ("\nYear 1749 must be greater than 1752\n", cnt->currentDay("-w 1749-10-16"));
    //month not right
    EXPECT_EQ("\nMonth 13 must be in the following scope [1, 12]\n", cnt->currentDay("-w 2018-13-16"))
    //day in month not right
    EXPECT_EQ("\nDay 33 must be in the following scope [1, 31]\n", cnt->currentDay("-w 2018-10-33"))
}
```

Coverage report:

LCOV - code coverage report					
Current view: top level - /home/osboxes/se3800_2018_10_16_goreckinj_avilese/calendar				Hit	Total
Test: coverage.info				Lines:	242 267 90.6 %
Date: 2018-10-17 14:15:54				Functions:	30 32 93.8 %
Filename	Line Coverage ↕		Functions ↕		
calendar.cpp	<div></div>	100.0 %	53 / 53	100.0 %	9 / 9
calendar.h	<div></div>	100.0 %	1 / 1	50.0 %	1 / 2
controller.cpp	<div></div>	91.0 %	142 / 156	100.0 %	13 / 13
main.cpp	<div></div>	76.9 %	10 / 13	100.0 %	3 / 3
view.cpp	<div></div>	81.8 %	36 / 44	80.0 %	4 / 5
Generated by: LCOV version 1.13					