

VG101 — Introduction to Computer and Programming

Lab 5 — Call of Cthulu

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Goals of the Lab

- Object Oriented Programming
- Design of Projects
- Advanced Documentation

1 Introduction

Tabletop role-playing game somehow became very popular among the classmates of the Minami's^[1], so they decided to have their own version of Call of Cthulu. However, the sisters don't want to use papers, pens to record the details during the game, so they'd like to see if you can write a simple program, i.e. a class interface for investigators, to do the job.

2 Assistance from Haruka

After some brainstorming with her friends, Haruka provides the following concepts which may encounter in the game as a guide.^[2]

name	sanity	search	stamina	luck
speed	hide	lore	listen	dodge
persuade	focus	escape	fight	job
run	possession	visit	climb	home

Please select and add components as you like, separate the methods from attributes and make a list.

3 Proposal from Kana

Instead of having all investigators of the same, Kana wants each player has different abilities so that the game has more uncertainties.

Please develop your own character classes, list their attributes, methods and draw a hierarchy diagram based on the previous list. Then define all the classes in a header file and implement all the methods in a cpp file.

4 Advice from Chiaki

Watching others enjoying role-playing games is always the most disappointing thing in the world, therefore finding a story teller is always hard. So Chiaki wonders if the computer can take the role, she has already downloaded some stories from the internet the job of your program is just to display one of them.

Please refer to `Getopt`^[3] as well as `dirent.h`^[4] and enable the following function:

- list all files in the current dirent if no command line option is provided.
- list all the content in a corresponding file if it is specified with command line option `--file`

A sample code is also provided about `dirent.h`^[5],

```

1  #include <stdio>
2  #include <stdlib>
3  #include <dirent.h>
4
5  int main() {
6      DIR *dir = opendir( "." );
7      while( dir ){
8          struct dirent *file = readdir( dir );
9          if( !file ) break;
10         if( file->d_name[ 0 ] != '.' ) std::printf( "%s\n",
            ↪ file->d_name );
11     }
12     closedir( dir );
13 }
```

5 Ending

Thanks for your effort, the Minami's held a successful game and had a nice time.

References

- [1] Sakuraba, Koharu. *Minami-ke*. vol.1, Kodansha, 5 Nov. 2004, pp. 6.
- [2] Charlemagne, Manuel. "Lab 5 - Class". *umjicanvas.com*, 21 Nov. 2018, umjicanvas.com/courses/848/files/144306/download?wrap=1. Accessed 21 Nov. 2018.
- [3] "Parsing program options using getopt". *GNU*, 2018, gnu.org/software/libc/manual/html_node/Getopt.html. Accessed 26 Jul. 2018.
- [4] "dirent.h". *The Open Group*, 2018, pubs.opengroup.org/onlinepubs/007908799/xsh/dirent.h.html. Accessed 26 Jul. 2018.
- [5] Liu, Yihao. "Lab 6". *umjicanvas.com*, 9 Jul. 2018, umjicanvas.com/courses/848/files/142266/download?wrap=1. Accessed 9 Jul. 2018.