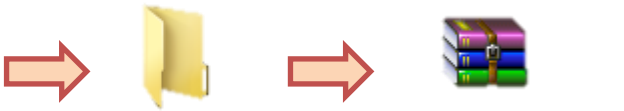
Programming Session Assignment 10

2017/12/11 by TA 陳泓弦

REQUIRED FILES

Please **compress a folder** named **PSA10_b06901XXX** (student ID) that contains the following files:

- ✓ b06901XXX _p1 project
- ✓ b06901XXX _p2 project



PSA10_b06901XXX PSA10_b06901XXX.zip

Do not submit executable files (.exe). Files with names in wrong format will not be graded. In your .cpp files, we suggest you write comments in details as much as you can. It will be good for TAs to read your code and for your future reference and maintenance. (Due date: 12/14 06:00) (Note that the deadline is Thursday morning.)

PROBLEM DESCRIPTION

1. **[Required file: b06901XXX _p1 project]**

   In the problem, you should implement Time.h and Time.cpp to define Time class and make main.cpp work. Header file Time.h should contain Time's class definition and Source-code file Time.cpp defines class member function. The Time class contains the hour, minute and second and we can use setTime(int, int, int) to set the hour, minute and second in Time class. We can use printUniversal() to print time in universal-time format (HH:MM:SS ex: 13:27:6) and use printStandard() to print time in standard time format (HH:MM:SS AM or PM ex: 1:27:6 PM). When we instantiate object t of class Time, you should set hour, minute and second to zero. That is, the output of Figure 1 should be 0:0:0 and 12:0:0 AM.

   Format:

```
The initial universal time is 0:0:0
The initial standard time is 12:0:0 AM
Please input hour, minute and second: 13 25 16
Universal time after setTime is 13:25:16
Standard time after setTime is 1:25:16 PM
```

```
int main() {
    Time t;
    // output Time object t's initial values
    cout << "The initial universal time is ";
    t.printUniversal();
    cout << "\nThe initial standard time is "
    t.printStandard();
}
```

Figure 1

You only need to submit 2 files – **Time.cpp and Time.h** and put them in a folder named b06901XXX _p1 in this problem.

2. [Required file: b06901XXX _p2]

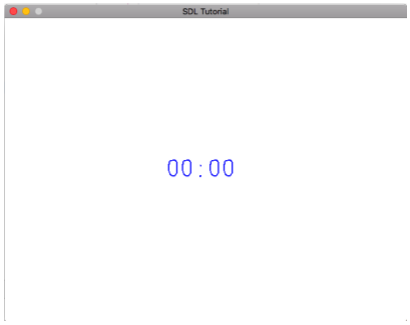
In this problem, please implement a time counter with SDL and extension library SDL_ttf and SDL_image. To use SDL_ttf, you have to set up the SDL_ttf extension library just like you would set up SDL_image.
Please follow the steps in this website to install SDL_ttf :
http://lazyfoo.net/tutorials/SDL/06_extension_libraries_and_loading_other_image_formats/index.php

In this problem, you should help us implement **ShowTime.h**, **ShowTime.cpp** and **TODO in main.cpp** to make main.cpp run successfully and show the time count HH:MM in the center of the window. The font size is **44** and the font color is **blue**. The initial window is "00:00". The first "00" represents hour and the second "00" represents minute. When we enter " ↑ " on keyboard, the window will become "00:01". If the window is "00:59" now, and we enter " ↑ ", it will become "01:00". The program closes window when we enter " ↑ " at the time the window is "23:59" .

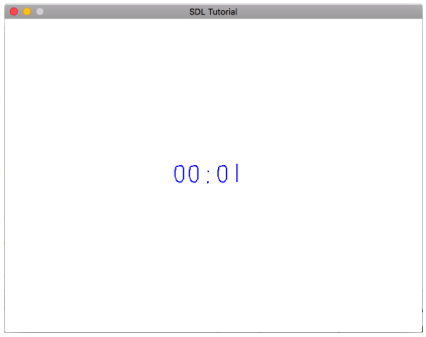
ShowTime class has three private member data: hour, minute and time[5].
The constructor **ShowTime(int, int)** should set member data hour and minute to zero and set time[5] to "00:00". The function **setTime(int hh, int mm)** set hour to hh and set minute to mm and update time[5] as "hh:mm". Copy the **bool loadMedia()** in the following website as a member function of ShowTime class to load time to gTextTexture.
http://lazyfoo.net/tutorials/SDL/16_true_type_fonts/index.php

Note: You should take care of the header in LTexture.h. Use #inlcude <SDL2/SDL.h> in mac and <SDL.h> in windows system. Same rule as SDL_image and SDL_ttf.
You should submit 3 files in your file: main.cpp, ShowTime.cpp and ShowTime.h. Don't need to submit LTexture.cpp and LTexture.h.

Format:
Initial window:



When we enter " ↑ " on keyboard,



When the window is "00:59", and we enter " ↑ ", the window will become "01:00".