

Lab Assignment 3 CS301 2022FALL

Your friend named Michael possesses a pet in SUSTech. However, since he is recently away from SUSTech, Michael asks you to help him feed his pet instead. To make this process easier, you decide to design a pet feeding system. The requirements and corresponding scores are as follows.

The pet has a property called **"HP"**, the initial HP is 30, and if the pet is not fed on time, the HP will be deducted.

The pet's avatar and HP should be displayed on the LCD screen. To be specific, the avatar of the pet should be displayed as a specific animal image (e.g., kitten, puppy. You can refer to the demo of touch screen lab.), and the HP value is displayed as a string. (20%)

At the beginning of the program, the pet will say "I am hungry", so in this time please show **"I am hungry"** on the LCD screen. This sentence means that the pet is hungry. Within five seconds, you must use the **Feed** button mentioned below to feed the pet. If the pet is not fed within five seconds, the pet's HP will be reduced by 10. After the pet's HP is reduced by 10, the program should wait three seconds, after which the screen continues to show "I am hungry" and repeats the above behavior. (20%)

Use the touch screen to implement the following functions. The LCD screen should have two buttons called **Feed** and **Ignore**. If the **Feed** button is touched, the pet is fed and the screen stops showing "I am hungry". If the **Ignore** button is touched, the screen shows **"Ignore the request."** and

the pet's HP is reduced by 10. After touching the *Feed* or *Ignore* buttons, the program waits for three seconds and then the pet continues to display "I am hungry ", repeating the behavior of the previous paragraph. (20%)

If you enter the following texts in the serial port: *HP=x* , x is an integer number from 0-30, if x is legal, the life value of the pet should be adjusted to x. At this time, the HP value displayed on the screen must be synchronized with the HP value after adjustment. If x is not legal, the life value remains unchanged and the following texts should be displayed in the serial port: "*Invalid input!*" (15%)

Design a log for feeding pets. Logs should be displayed on the screen. The log should contain a record of each feeding. The log should include how many times the pet was fed and whether it was fed in this time. Logs should have a scrolling display feature. That is, if the number of logs is so large that the screen can't fit enough text, scroll the page to a certain position to show the most recent logs. (20%)

If the pet's HP equals to or less than 0, a game over picture should be displayed in the screen and the program exits. (5%)