

## LAB REPORT 实验报告

Lab Title	Unions			Lab No.	11
Stud. Name		Major	CST	Class	
Student ID			Date		

**Lab description/objectives:**

*Each student's information includes name, student ID, gender(male:'M', female:'F'). In addition, for boys, you need to record their eyesight (normal: 'Y', abnormal: 'N'); for girls, you need to record their height and weight.*

*Complete the following program that reads the information of two students from keyboard into a structure array stud[2]( a boy and a girl), and displays it on the screen .*

**Source code:**

```
#include <stdio.h>

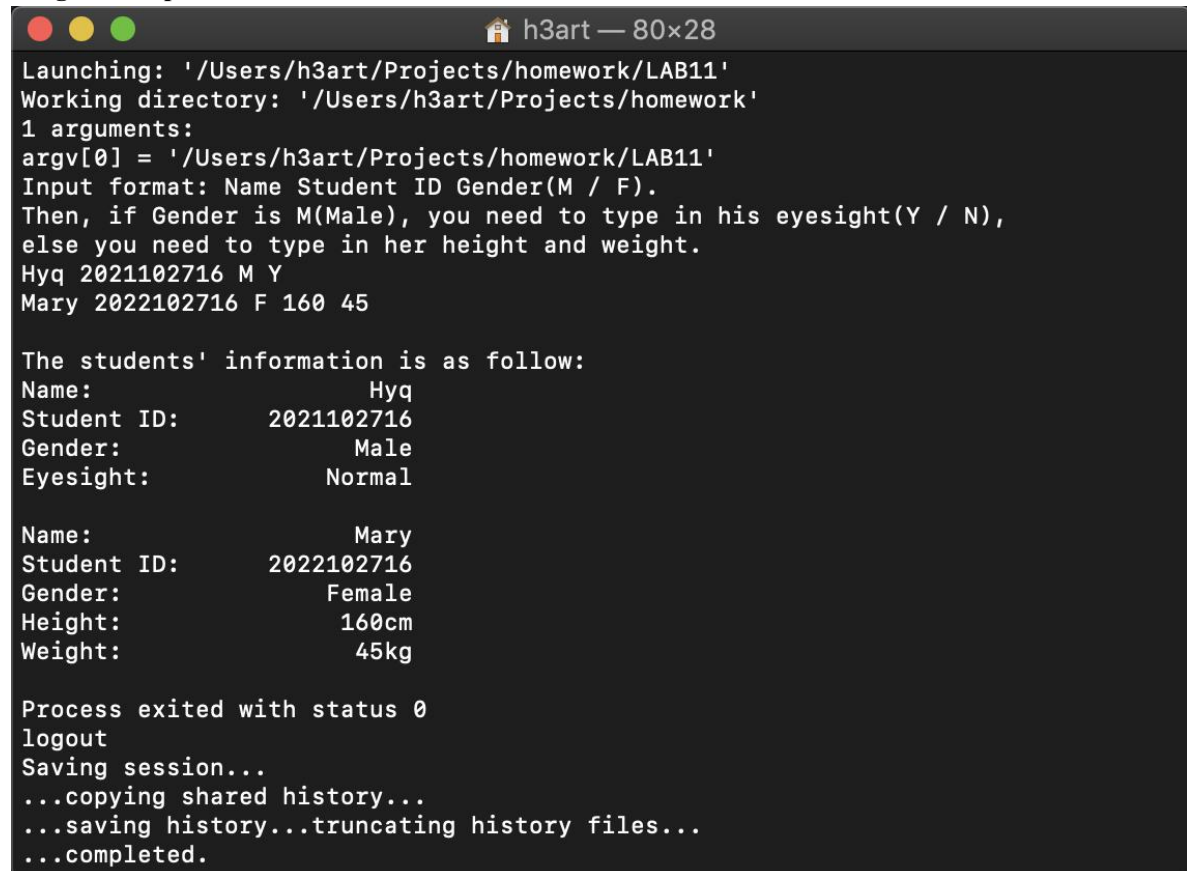
struct Student {
    char name[20];
    long long studId;
    char gender;
    union Body {
        char eye;
        struct {
            int height;
            int weight;
        } f;
    } body;
} stud[2];

int main()
{
    printf("Input format: Name Student ID Gender(M / F).\n");
```

```
printf("Then, if Gender is M(Male), you need to type in his eyesight(Y / N),\n");
printf("else you need to type in her height and weight.\n");
for (int i = 0; i < 2; i++) {
    scanf("%s%10lld", stud[i].name, &stud[i].studId);
    do {
        stud[i].gender = getchar();
    } while (stud[i].gender != 'M' && stud[i].gender != 'F');
    if (stud[i].gender == 'M') {
        do {
            stud[i].body.eyesight = getchar();
        } while (stud[i].body.eyesight != 'Y' && stud[i].body.eyesight != 'N');
    }
    else {
        scanf("%d%d", &stud[i].body.f.height, &stud[i].body.f.weight);
    }
}

printf("\nThe students' information is as follow:\n");
for (int i = 0; i < 2; i++) {
    printf("Name:%22s\n", stud[i].name);
    printf("Student ID: %5c%010lld\n", ' ', stud[i].studId);
    if (stud[i].gender == 'M') {
        printf("Gender:%20s\n", "Male");
        if (stud[i].body.eyesight == 'Y') {
            printf("Eyesight: %17s\n", "Normal");
        }
        else {
            printf("Eyesight: %17s\n", "Abnormal");
        }
    }
    else {
        printf("Gender:%20s\n", "Female");
    }
}
```

```
        printf("Height:%18dcm\n", stud[i].body.f.height);  
        printf("Weight:%18dkg\n", stud[i].body.f.weight);  
    }  
    printf("\n");  
}  
  
return 0;  
}
```

**Program outputs:**A terminal window titled 'h3art — 80x28' showing the execution of a program. The output includes the launch path, working directory, arguments, input format instructions, user input for two students, and a formatted display of their information. The process ends with a status 0, followed by session saving and history management messages.

```
Launching: '/Users/h3art/Projects/homework/LAB11'  
Working directory: '/Users/h3art/Projects/homework'  
1 arguments:  
argv[0] = '/Users/h3art/Projects/homework/LAB11'  
Input format: Name Student ID Gender(M / F).  
Then, if Gender is M(Male), you need to type in his eyesight(Y / N),  
else you need to type in her height and weight.  
Hyq 2021102716 M Y  
Mary 2022102716 F 160 45  
  
The students' information is as follow:  
Name:           Hyq  
Student ID:      2021102716  
Gender:          Male  
Eyesight:        Normal  
  
Name:           Mary  
Student ID:      2022102716  
Gender:          Female  
Height:          160cm  
Weight:          45kg  
  
Process exited with status 0  
logout  
Saving session...  
...copying shared history...  
...saving history...truncating history files...  
...completed.
```

**Discussion:**

1. Most difficult parts
2. Bugs and/or Errors