

Using Real Life Teaching Cases to Demonstrate Three Kinds of Program Structure of C Language

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Abstract: In order to improve the freshmen's interest in learning C language, this paper designs three cases from real life to express three kinds of program structures in C language. The purpose is to improve students' interest in learning and further improve the quality of teaching.

Keywords: C; Program; Three Kinds Of Language; Interest; Teaching Quality

I. INTRODUCTION

For non computer major freshmen, the learning of C language programming can be said to be very difficult. It is very important to master the three program structures in C language. How to improve students' interest and help them understand and master the realization of the three basic structures faster and better is a problem that every teacher should consider. This paper designs three cases closely combined with daily life to help students improve their interest in learning and master the realization of three basic structures of C language faster.

II. CASE OF SEQUENTIAL STRUCTURE

A. Case of function description

Please output the following information in C language.

Xiaofei's daily schedule:

Wake up: 6:00

Morning exercise: 6:30

Breakfast: 7:00

Class: 8:00-11:50

Lunch: 12:00

Nap: 12:35

Afternoon class: 14:00-17:50

Evening: free arrangement

B. Case of algorithm analysis

This is a sequential structure, in order to output information line by line.

C. Case of C language source code

```
#include <stdio.h>
int main(void)
{printf("Xiaofei's daily schedule:\n");
printf("get up:6: 00\n");
printf("morning exercise:6:30\n");
printf("breakfast:7: 00\n");
printf("morningclass:8: 00—11:50\n");
printf("Lunch:12:00\n");
printf("nap:12:35\n");
printf("afternoon class:14:00—17:50\n");
printf("evening: free time to arrange.\n");
return 0;
}
```

III. SELECT STRUCTURAL CASES

A. Case of function description

Please design a program to display the message of greetings. If the time entered is before 12 am, it will display "good morning!", if between 12:00 and 18:00, "good afternoon!" is displayed, if between 18:00 and 24:00, "good evening!" is displayed, the input time must be between 0 and 24, otherwise "out of range!" will be displayed Error message for.

B. Case of algorithm analysis

This is a typical multi branch case, which can be implemented by using the selection structure. It can be implemented with parallel if statement structure or nested if statement structure.

C. Case of C language source code

1. C language source code using branch if statements

```
#include <stdio.h>
int main(void)
{int t;
printf("Please enter an integer time:\n");
scanf("%d",&t);
if(t>=0 && t<=12)
printf("Good morning! ");
if(t>12 && t<=18)
printf("Good afternoon! ");
if(t>18 && t<=24)
printf("Good evening! ");
if(t<0 || t>24)
printf("Data out of range! ");
return 0;
}
```

2. C language source code using nested branch if statements

```
#include <stdio.h>
int main(void)
{int t;
printf("Please enter an integer time:\n");
scanf("%d",&t);
if(t>=0 && t<=12)
printf("Good morning!");
else if(t>12 && t<=18)
printf("Good afternoon!");
else if(t>18 && t<=24)
printf("Good evening!");
else
printf("Data out of range!");
return 0;
}
```

IV. CYCLE STRUCTURE CASE

A. Case of function description

Please design a password input program, assuming that

the initial password is the number 123456, allowing three times to enter the password, if the input is correct, the display "password is correct, the door has been opened!" If the password is incorrect and the number of password input is less than 3 times, the message "password error, please input again!" will be displayed, if the password is wrong and the number of times is more than 3, it will display "password error, you have entered the password for 3 times, the door cannot be opened! Please come back."

B. Case of algorithm analysis

This is a problem that needs to be solved by using the loop structure, which can be realized by using the while loop statement, the for statement, and the do while statement three times.

C. Case of C language source code

1. Using the while statement structure to realize the source code

```
#include <stdio.h>
int main(void)
{int m,n;
 n=1;
 while(n<=3)
 {printf("Please enter the password:\n");
 scanf("%d",&m);
 if(m==123456)
 {printf("The password is correct, the door is open! ");
 break;
 }
 else
 {if(n<3)
 {printf("Wrong password, please input it again! ");
 n=n+1; //password times plus 1
 }
 else
 {printf("Wrong password, you have entered the
password 3 times, the door can't be opened! Please go
back!\n");
 break;
 }
 }
 }
 return 0;
}
```

2. Using for statement structure to realize sourcecode

```
#include <stdio.h>
int main(void)
{int m,n;
```

```
for(n=1;n<=3;n++)
{printf("Please enter the password:\n");
scanf("%d",&m);
if(m==123456)
{printf("The password is correct, the door is
open!");
break;
}
else
{if(n<3)
printf("Wrong password, please input it again!");
else
{printf("Wrong password, you have entered
the password 3 times, the door can't be opened! Please go
back!");
break;
}
}
}
return 0;
}
```

CONCLUSION

Interest is the best teacher, cases from real life are easier to arouse students' interest in learning. Real life examples shorten the distance between students and C language, deepen students' understanding of C language, and have a practical help to improve the quality of teaching.

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