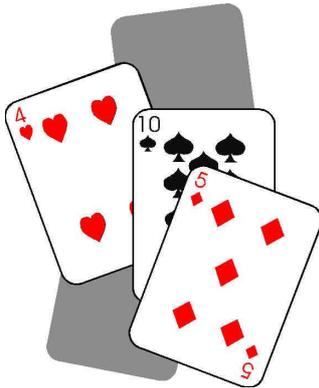


**B. E. U. Department of Civil Engineering
2014–2015 Spring Term CIV 112 Computer Programming Mid-Term Exam**



8. You are going to write “21 card game” in C. First, computer creates and displays a random number from 1 to 13, which is your card (also your hand). Then, computer asks user (player): “Do you want one more card (Y/N)?”. If user presses “y” or “Y” characters, computer creates a new random number and adds this number to the sum of the previous card (which is your hand). The loop is executed until user presses any other key apart from “y” or “Y”. The aim of this game is to reach 21. If your hand gets bigger than 21, computer terminates the loop. After quitting the loop, computer checks whether your hand is equals to 21 or not. If your hand is equals to 21, computer displays “You win”, otherwise displays “You Lose” messages.

Important:

- You may use `(rand() % (max+1-min))+min` to create random number in a certain range.

The screen shots are given below.

<pre>Your card is: 3 Do you want one more card (Y/N)?y Your card is: 10 Do you want one more card (Y/N)?y Your card is: 3 Do you want one more card (Y/N)?y Your card is: 1 Do you want one more card (Y/N)?y Your card is: 4 Do you want one more card (Y/N)?n You win</pre>	<pre>Your card is: 7 Do you want one more card (Y/N)?y Your card is: 12 Do you want one more card (Y/N)?y Your card is: 12 You lose</pre>
---	---

Fill in the blanks to complete 21 card game program in C. (40p.)

```

_____
_____
_____
main()
{
int num,hand=0;    /* num: random number, hand: sum of random numbers */
char ans;         /* ans: answer */
_____
_____
{
    _____
    _____
    _____
    _____
    _____
} while(_____)
switch (_____)
{
    _____
    _____
}
_____
}
    
```

Question is valid for DevC++ IDE.

Answer:

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
main()
{
    int num,hand=0;
    char ans;
    srand(time(0));
    do
    {
        num=(rand()%13)+1;
        printf("Your card is: %d",num);
        hand+=num;
        if (hand>21) break;
        printf("\nDo you want one more card (Y/N)?");
        scanf("%s",&ans);
    }
    while(ans=='y' || ans=='Y');
    switch (hand)
    {
        case 21: printf("You win"); break;
        default: printf("\nYou lose");break;
    }
    return 0;
}
```