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CMSC 21 – 1 March 23, 2022

Selection Statements
Lecture 3 Assignments

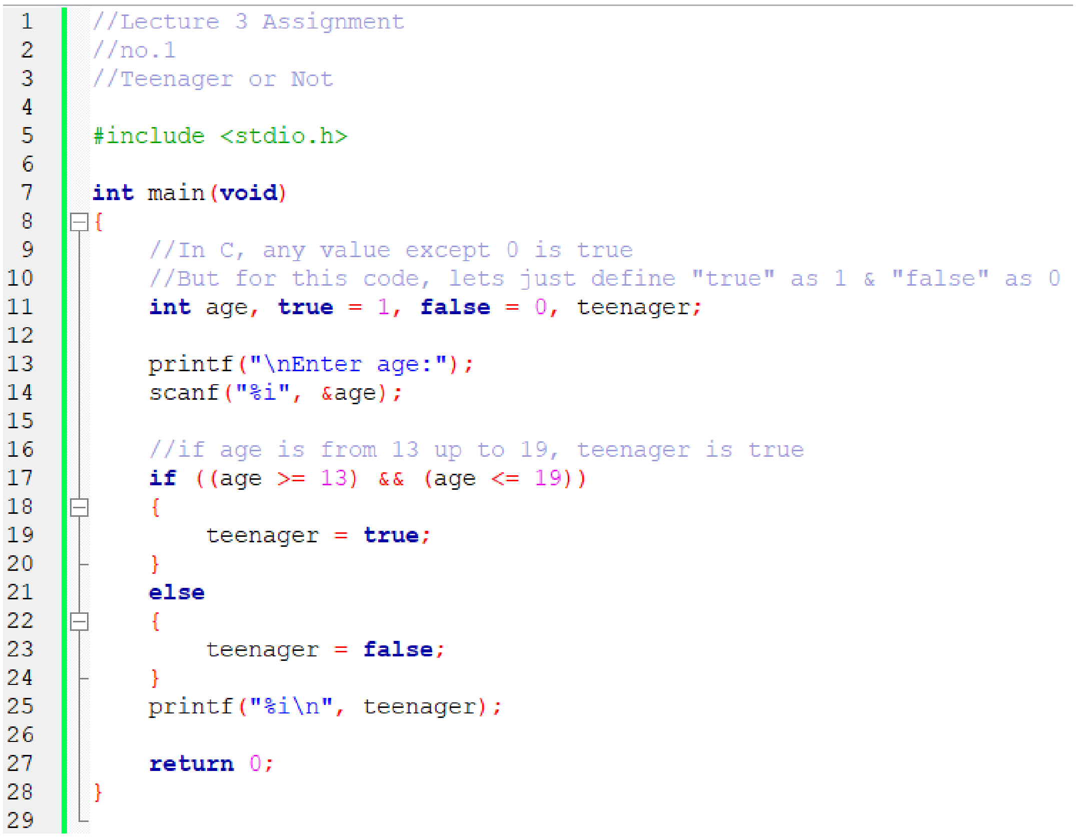
1. The following if statement is unnecessarily complicated. Simplify it as much as possible. (Hint: The entire statement can be replaced by a single assignment.)

```
if (age >= 13)
   if (age <= 19)
      teenager = true;
   else
      teenager = false;
else if (age < 13)
   teenager = false;
```

Modified if statement:

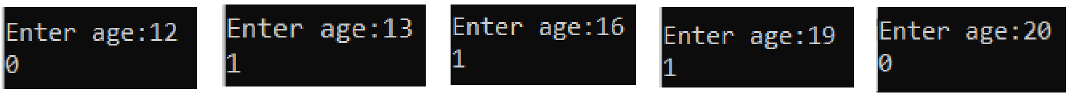
```
if ((age >= 13) && (age <= 19))
{
    teenager = true;
}
else
{
    teenager = false;
}
```

Screenshot of the code:



```
//Lecture 3 Assignment
//no.1
//Teenager or Not

#include <stdio.h>

int main(void)
{
    //In C, any value except 0 is true
    //But for this code, lets just define "true" as 1 & "false" as 0
    int age, true = 1, false = 0, teenager;

    printf("\nEnter age:");
    scanf("%i", &age);

    //if age is from 13 up to 19, teenager is true
    if ((age >= 13) && (age <= 19))
    {
        teenager = true;
    }
    else
    {
        teenager = false;
    }
    printf("%i\n", teenager);

    return 0;
}

```

Example Outputs: *(1 = true, 0 = false)*



```
Enter age:12
0
```

```
Enter age:13
1
```

```
Enter age:16
1
```

```
Enter age:19
1
```

```
Enter age:20
0
```

2. Write a C program that does the following:

Enter a two-digit number: 25
Number entered in words: twenty-five

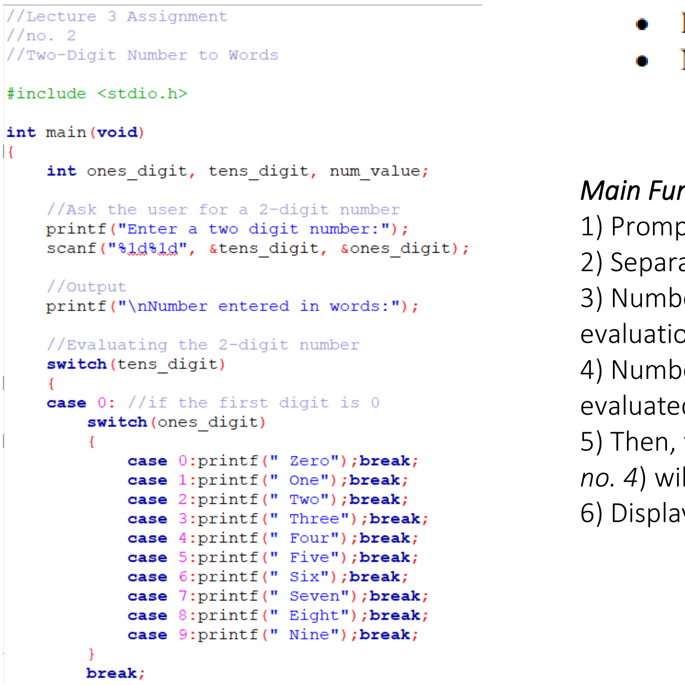
Hint:

- Break the number into two digits.
- Note: `11` and `19` require special treatment.

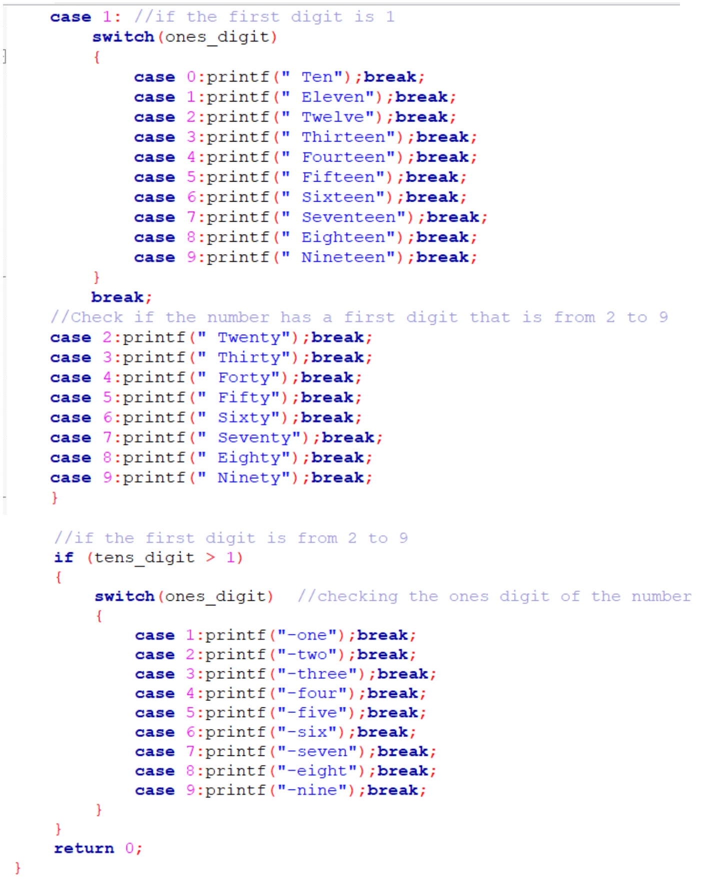
Main Functionalities:

1) Prompts user for a two-digit number
2) Separates each digit to their respective variables
3) Numbers with **first digit of 0 or 1** will get special evaluations
4) Numbers with **first digit that of 2 to 9** will be evaluated as “Twenty”, “Thirty”, etc.
5) Then, the **second digit of numbers** (*that belong to no. 4*) will be evaluated.
6) Displays the conversion (Number to words)

Screenshot of the code:

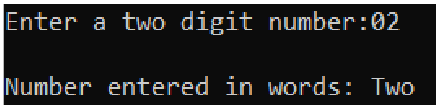


```
//Lecture 3 Assignment
//no. 2
//Two-Digit Number to Words

#include <stdio.h>

int main(void)
{
    int ones_digit, tens_digit, num_value;

    //Ask the user for a 2-digit number
    printf("Enter a two digit number:");
    scanf("%1d%1d", &tens_digit, &ones_digit);

    //Output
    printf("\nNumber entered in words:");

    //Evaluating the 2-digit number
    switch(tens_digit)
    {
    case 0: //if the first digit is 0
        switch(ones_digit)
        {
            case 0:printf(" Zero");break;
            case 1:printf(" One");break;
            case 2:printf(" Two");break;
            case 3:printf(" Three");break;
            case 4:printf(" Four");break;
            case 5:printf(" Five");break;
            case 6:printf(" Six");break;
            case 7:printf(" Seven");break;
            case 8:printf(" Eight");break;
            case 9:printf(" Nine");break;
        }
        break;
```

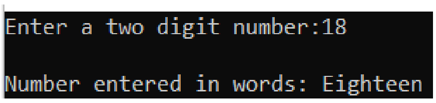


```
    case 1: //if the first digit is 1
        switch(ones_digit)
        {
            case 0:printf(" Ten");break;
            case 1:printf(" Eleven");break;
            case 2:printf(" Twelve");break;
            case 3:printf(" Thirteen");break;
            case 4:printf(" Fourteen");break;
            case 5:printf(" Fifteen");break;
            case 6:printf(" Sixteen");break;
            case 7:printf(" Seventeen");break;
            case 8:printf(" Eighteen");break;
            case 9:printf(" Nineteen");break;
        }
        break;
    //Check if the number has a first digit that is from 2 to 9
    case 2:printf(" Twenty");break;
    case 3:printf(" Thirty");break;
    case 4:printf(" Forty");break;
    case 5:printf(" Fifty");break;
    case 6:printf(" Sixty");break;
    case 7:printf(" Seventy");break;
    case 8:printf(" Eighty");break;
    case 9:printf(" Ninety");break;
    }

    //if the first digit is from 2 to 9
    if (tens_digit > 1)
    {
        switch(ones_digit)  //checking the ones digit of the number
        {
            case 1:printf("-one");break;
            case 2:printf("-two");break;
            case 3:printf("-three");break;
            case 4:printf("-four");break;
            case 5:printf("-five");break;
            case 6:printf("-six");break;
            case 7:printf("-seven");break;
            case 8:printf("-eight");break;
            case 9:printf("-nine");break;
        }
    }
    return 0;
}
```

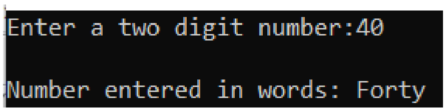
Example Outputs:



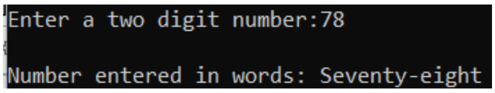
```
Enter a two digit number:02

Number entered in words: Two
```



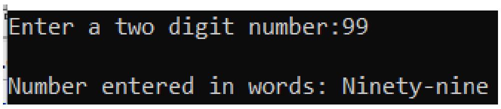
```
Enter a two digit number:18

Number entered in words: Eighteen
```



```
Enter a two digit number:40

Number entered in words: Forty
```



```
Enter a two digit number:78

Number entered in words: Seventy-eight
```



```
Enter a two digit number:99

Number entered in words: Ninety-nine
```

GitHub link: https://github.com/nbbryy/CMSC-21.git