

## 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;
```

Save your code as `as1.c`

**Program:**

```
1  #include <stdio.h>
2  #include <stdbool.h>
3
4  int main (void)
5  {
6      int age;
7      bool teenager = false;
8      |
9      printf("Enter age: ");
10     scanf("%d", &age);
11
12     if (age >= 13 && age <= 19) {
13         teenager = true;
14     }
15
16     printf("Teenager: %s\n", teenager ?
17         "true" : "false");
18
19     return 0;
20 }
```

2. Write a C program that does the following:

Enter a two-digit number: 25

Number entered in words: twenty-five

**Program:**

```
1  #include <stdio.h>
2
3  int main(void)
4  {
5      int num1, num2;
6
7      // input number from user
8      printf("Enter a two-digit number: ");
9      scanf("%1d%1d", &num1, &num2);
10
11     printf("Number entered in words: ");
12
13     // print word for the first digit
14     switch (num1)
15     {
16         case 1:
17             // 10 - 19 special treatment
18             switch (num2)
19             {
20                 case 0:
21                     printf("ten");
22                     return 0;
23                 case 1:
24                     printf("eleven");
25                     return 0;
26                 case 2:
27                     printf("twelve");
28                     return 0;
29                 case 3:
30                     printf("thirteen");
31                     return 0;
32                 case 4:
33                     printf("fourteen");
34                     return 0;
35                 case 5:
36                     printf("fifteen");
37                     return 0;
38                 case 6:
39                     printf("sixteen");
40                     return 0;
41                 case 7:
42                     printf("seventeen");
43                     return 0;
44                 case 8:
45                     printf("eighteen");
46                     return 0;
47                 case 9:
48                     printf("nineteen");
49                     return 0;
50     }
```

```
51     case 2:
52         printf("twenty");
53         break;
54     case 3:
55         printf("thirty");
56         break;
57     case 4:
58         printf("forty");
59         break;
60     case 5:
61         printf("fifty");
62         break;
63     case 6:
64         printf("sixty");
65         break;
66     case 7:
67         printf("seventy");
68         break;
69     case 8:
70         printf("eighty");
71         break;
72     case 9:
73         printf("ninety");
74         break;
75 }
76
77 // print word for the second digit
78 switch (num2)
79 {
80     case 1:
81         printf("-one");
82         break;
83     case 2:
84         printf("-two");
85         break;
86     case 3:
87         printf("-three");
88         break;
89     case 4:
90         printf("-four");
91         break;
92     case 5:
93         printf("-five");
94         break;
95     case 6:
96         printf("-six");
97         break;
98     case 7:
99         printf("-seven");
100        break;
101     case 8:
102         printf("-eight");
103         break;
104     case 9:
105         printf("-nine");
106         break;
107 }
108
109 return 0;
110 }
```