Ellabelle E. Garcia
1st Year Computer Science
Ara Abigail E. Ambita
CMSC 21
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Operators in C
Lecture 2 Assignments

1. Code the following:
a. Prompt the user to enter a two-digit number
b. Display the number with the digits reversed

Example:
```
Please enter a 2-digit number:75
Reverse:57
```

```c
#include <stdio.h>

int main(void){

    // Variable declaration
    int n, digit1,digit2, reverse ;

    // Get input from user
    printf("Please enter a 2-digit number: ");
    scanf("%2d", &n);

    // Calculations: n = 45
    digit1 = n / 10;                        // 45/10 = 4
    digit2 = n % 10;                        // 21%10 = 5
    reverse =  (10 * digit2) + digit1;      //(10 * 5) + 4 = 50 + 4 = 54

    // If the input ends with 0 the reverse should start with 0
    if (digit2 == 0)
    {
        printf("Reverse: %d%d\n", digit2, digit1);  // if n = 20, reverse = 02
    }
    else
    {
        printf("Reverse: %d\n", reverse);
    }

    return 0;
}
```

Outputs

```
Please enter a 2-digit number: 57
Reverse: 75
```

```
Please enter a 2-digit number: 50
Reverse: 05
```

2. Extend the code in item 1, such that it reverses a 3-digit number.

Example:

```
Please enter a 3-digit number: 123
Reverse: 321
```

```c
#include <stdio.h>

int main(void){

    // Variable declaration
    int n, num1,num2,num3, reverse ;

    // Get input from user
    printf("Please enter a 3-digit number: ");
    scanf("%3d", &n);

    // Calculations: n = 123
    num1 = n / 100;                                  // 123/100 = 1
    num2 = (n % 100) / 10;                           // (123%100)/10 = 23/10 = 2
    num3 = n%10 ;                                    // 123%10 = 3
    reverse = (100 * num3) + (10 * num2) + num1;     // 300 + 20 + 1 = 321

    // If the input ends with 0 the reverse should start with 0
    if (num3 == 0)
    {
        printf("Reverse: %d%d%d\n", num3, num2, num1); //if n=120, reverse = 021
    }
    else
    {
        printf("Reverse: %3d\n", reverse);
    }

    return 0;

}
```

Outputs

```
Please enter a 3-digit number: 543
Reverse: 345
```

```
Please enter a 3-digit number: 130
Reverse: 031
```

3. Provide the output of the following codes, given that i, j, and k are integer variables.

```
a) i = 3; j = 4; k = 5;
printf("%d", i < j || ++j < k);
```
Output: 1
```
b) i = 7; j = 8; k = 9;
printf("%d",i - 7 && j++ < k);
```
Output: 0
```
c) i = 7; j = 8; k = 9;
printf("%d", (i = j) || (j == k));
```
Output: 1
```
printf("%d %d %d", i, j, k);
Output: 8 8 9
d) i = j = k = 1;
printf("%d", ++i || ++j && ++k);
```
Output: d
```
printf("%d %d %d", i, j, k);
```
Output: 2 1 1

```c
#include <stdio.h>

int main(void){

    int i, j, k;

    i = 3; j = 4; k = 5;
    printf("\na) %d", i < j || ++j < k);

    i = 7; j = 8; k = 9;
    printf("\nb) %d",i - 7 && j++ < k);

    i = 7; j = 8; k = 9;
    printf("\nc.1) %d", (i = j) || (j == k));
    printf("\nc.2) %d %d %d", i, j, k);

    i = j = k = 1;
    printf("\nd.1) %d", ++i || ++j && ++k);
    printf("\nd.2) %d %d %d", i, j, k);

    return 0;
}
```

Output

```
a) 1
b) 0
c.1) 1
c.2) 8 8 9
d.1) 1
d.2) 2 1 1
```