Week 1: In-Class Exercises

1. **[Difficulty: *]** Write a program that prompts the user for 3 integers, calculates the sum, and displays the sum.

```
Enter n1:2
Enter n2:1
Enter n3:5
2 + 1 + 5 = 8
```

2. **[Difficulty: *]** Write a program that prompts the user for two integers, calculates the sum, product, and quotient, and displays the results.

```
Enter n1:10
Enter n2:5
10 + 5 = 15
10 * 5 = 50
10 / 5 = 2
```

3. **[Difficulty: **]** Write a program that displays the squares and cubes of numbers from 0 to 10, and uses tab characters (\t) to separate the output into columns.

```
N     N^2    N^3
0     0      0
1     1      1
2     4      8
3     9      27
4     16     64
5     25     125
6     36     216
7     49     343
8     64     512
9     81     729
10    100    1000
```

4. **[Difficulty: **]** Write a program that prompts the user for an integer representing a time in seconds, and converts it to hours, minutes, and seconds, in the format H:M:S.

```
Enter time in seconds:5000
5000 seconds is 01:23:20 (HH:MM:SS)
```

5. **[Difficulty: **]** Airlines have rules for passengers with regards to carrying power bank onto flights. For example, China's aviation regulations state that power banks can be carried without approval if the rated power is less than 100 Wh. Write a program that calculates the rated power of power banks. The formula is as follows:

$$\frac{mAh}{1000} \times V = Wh$$

mAh: milliampere
V: voltage
Wh: Watt Hours

```
Enter capacity(mAh):8000
Enter voltage(V):5
rated power: 40 Wh
```

6. **[Difficulty: **]** Write a program that prompts the user for the number of males and the number of females in a class. The program then displays the percentage of females to 1 decimal place. Assume correct inputs are given.

```
Enter num males:25
Enter num females:20
Percentage(Females)= 44.1%
```

Hint:

```
// try running this program and observe the output
#include <stdio.h>

int main(void) {
   double num = 1.234567;
   printf("%.1lf\n", num);
   printf("%.2lf\n", num);
   printf("%.3lf\n", num);
   printf("%.4lf\n", num);
}
```

7. **[Difficulty: **]** Write a program that calculates the BMI of a user. The formula for BMI is as follows:

$$BMI = \frac{weight\ in\ kilograms}{(height\ in\ meters)^2}$$

```
Enter weight(kg):70
Enter height(m):1.78
BMI is 22.093170
```

8. **[Difficulty: **]** Write a program that prompts the user for a 5-digit number, then prints the sum of the digits.

```
Enter number:34901
3 + 4 + 9 + 0 + 1 = 17
```