

Homework Assignment

2017 Fall Semester

Sookmyung Women's University

C Programming

Professors:

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Homework Due:

PM 10:00, December 4, 2017

(**Firm Deadline**, Please keep the day and time, and pre-check Snowboard System Status)

Points:

30 Points

Grading Focus:

According to following factors, grading will be performed:

1. Degree of Self-Programming
2. Level of Variable Declarations, Indentations and Comments in each Program
3. Robustness of Programs for several error cases
4. Flexibility degree for many kinds of input and output
5. Report Details for each Program and the Results

1. Description (*Body Mass Index Calculation*) 5 POINTS:

By recent estimates, there are many people in Korea who are overweight and about half of those are obese. This causes significant increases in illnesses such as diabetes and heart disease. To determine whether a person is overweight or obese, you can use a measure called the body mass index (BMI). The United States Department of Health and Human Services provides a BMI calculator at www.nhlbisupport.com/bmi/.

The formulas for calculating BMI are:

$$BMI = \frac{\text{weight in Pounds} * 703}{\text{height in inches} * \text{height in inches}}$$

or

$$BMI = \frac{\text{weight in Kilograms}}{\text{height in meters} * \text{height in meters}}$$

Task: Create a BMI calculator application that reads the user's weight in pounds and height in inches (or, if you prefer, the user's weight in kilograms and height in meters), then calculates and displays the user's body mass index. The output should look something like this:

```
BMI VALUES
Underweight: less than 18.5
Normal:      between 18.5 and 24.9
Overweight:  between 25 and 29.9
Obese:       30 or greater
```

2. Description (*Selective problems*) **5 POINTS:**

Using a homework assignment 1, you can make a difference program that solves one of the following three problems:

(1) calculate usage of your pocket money for a month and

(2) calculate your walking distance in a month (calculate daily distance and calculate average distance in a month)

(3) calculate calorie intake (calculate calorie intake in daily basis and define gain weight or loss weight in a month).

3. Description (*Food Recommendation System*) **8 POINTS:**

Everybody likes delicious food! However, making delicious food is a difficult task. Because you should know many recipes. If we have a program that recommends us food based on ingredients we have, we can make our life a lot easier.

Task: For this homework assignment, create a recommender application that reads food ingredients (depend on student, you can create 5 input or 10 inputs), then displays what food you can make using inserted ingredients. The output should look something like this:

Example)

Insert Food Ingredients

1st Ingredient: Rice

2nd Ingredient: Carrot

3rd Ingredient: Cucumber

... (You can give any value as input that you want to show)

Food Recommendation:

비빔밥

볶음밥 (English or Korean input & output are OK)

4. Description (*Food Recipe*) **12 POINTS:**

Homework assignment 2 is a program that recommends a food according to inserted ingredients. In this assignment, you should insert a food name, and list up ingredients and amount of ingredients in the food (sugar: 30 grams, rice: 500 grams).

Example)

Insert Food Name: 라면

How many people: 2명 (You can give any value as input that you want to show)

Result: 라면: 2개
 물: 1000 grams,
 파: 40 grams,
 계란: 2개

(English or Korean input & output are OK)