

# Assignment 4 - Macros

**Due** Feb 27 at 11:59pm      **Points** 7      **Questions** 5  
**Available** until Feb 27 at 11:59pm      **Time Limit** None  
**Allowed Attempts** Unlimited

This quiz was locked Feb 27 at 11:59pm.

## Attempt History

	Attempt	Time	Score
LATEST	<a href="#">Attempt 1</a>	57 minutes	6 out of 7

 Correct answers are hidden.

Score for this attempt: **6** out of 7

Submitted Feb 22 at 9:12pm

This attempt took 57 minutes.

Using the following macro definition, expand the macro invocations below.

```
fruit(%name, %nutrient1, %nutrient2=sugar) ::  
    %name are rich in %nutrient1 and %nutrient2 ;;
```

### Question 1

1 / 1 pts

I have heard that %fruit(%name=bananas, %nutrient1=potassium)

Your Answer:

The expanded macro invocation is:

I have heard that bananas are rich in potassium and sugar.

The given macro definition takes three parameters %name, %nutrient1, and %nutrient2. Here, in the macro invocation %name value is "bananas" and %nutrient1 value is "potassium". %nutrient2 value is not specified, so it takes the value "sugar" as defined in the macro definition. Therefore, the resulting expanded text is "I have heard that bananas are rich in potassium and sugar".

## Question 2

1 / 1 pts

I have heard that %fruit(%name=oranges, %nutrient2=Vitamin C, %nutrient1=niacin)

Your Answer:

The expanded macro invocation is:

I have heard that oranges are rich in niacin and Vitamin C.

The given macro definition takes three parameters %name, %nutrient1, and %nutrient2. Here, in the macro invocation %name value is "oranges", %nutrient1 value is niacin, and %nutrient2 value is Vitamin C. Therefore, the resulting expanded text is "I have heard that oranges are rich in niacin and Vitamin C".

Here, note that the order of the arguments in the macro invocation does not matter, since they are specified by name. Also, %nutrient2 is not set to its default value of "sugar" in this case, since it is explicitly given a different value in the macro invocation.

## Question 3

0 / 1 pts

I have heard that %fruit(%name=apples, %nutrient2=Vitamin D)

Your Answer:

The expanded macro invocation can be:

I have heard that apples are rich in %nutrient1 and Vitamin D.

The given macro definition takes three parameters %name, %nutrient1, and %nutrient2. Here, in the macro invocation %name value is "apples", %nutrient2 value is "Vitamin D", and %nutrient1 is not explicitly set, and there is no default value specified in the macro definition. So, when the macro is expanded, %nutrient1 remains as is, resulting in the expanded text "I have heard that apples are rich in %nutrient1 and Vitamin D.

Here, note that the macro definition allows for an optional %nutrient2 parameter, but does not specify a default value for %nutrient1. Therefore, the macro invocation must explicitly provide a value for %nutrient1.

This macro will give an error as nutrient1 argument is not passed

#### Question 4

2 / 2 pts

Assuming that your macro processor supports nested macros, use the following definitions:

***source :: WebMD.com ;;***

***fruit(%name, %nutrient1, %nutrient2=sugar) ::***

***According to %source, %name are rich in %nutrient1 and %nutrient2 ;;***

Expand the following macro:

***%fruit(%name=kiwis, %nutrient1=Vitamin D, %nutrient2=Vitamin K)***

Your Answer:

The expanded macro invocation can be:

According to WebMD.com, kiwis are rich in Vitamin D and Vitamin K.

The given macro definition takes three parameters %name, %nutrient1, and %nutrient2. The source value is WebMD.com. Here, in the macro invocation %name value is "kiwis", %nutrient1 value is "Vitamin D", and %nutrient2 value is "Vitamin K". The macro definition uses the %source macro to insert "WebMD.com" into the resulting text. So, the expanded text is "According to WebMD.com, kiwis are rich in Vitamin D and Vitamin K."

**Question 5****2 / 2 pts**

Two mechanisms for implementing the processing of nested macros are:

and

**Answer 1:****Answer 2:****Quiz Score: 6 out of 7**