

# Quiz Section for Program Design (I)

## Exercise #5

Once we learned selection statements and loops, we could build a simple game on our own. In this game, a user will play as an owner of a food truck, who sells hotdogs around 4 different areas. The owner will linger at each area for three hours. In these three hours, the owner could choose to open the food truck to sell the hotdogs, or close the food truck to cultivate his cooking techniques. If the owner chooses to open the food truck, the owner could earn money from hotdogs he could make. The owner needs 15 minutes to make a hotdog, and the price of a hotdog is \$30. The owner could accelerate the speed of making hotdogs and raise the price by cultivating the cooking techniques. There are two aspects of cooking techniques able to enhance, the speed of making hotdogs and the taste of the hotdog. If the owner chooses to enhance the speed of making hotdogs, the owner could reduce 1 minute to make a hotdog, but the owner needs to cost \$50 at the first time to enhance. Be aware that the owner will need at least 1 minute to make a hotdog. If the owner couldn't be much faster, the game should show a warning message and force the owner to sell hotdogs. On the other hand, if the owner chooses to enhance the taste of the hotdog, the price of each hotdog will raise \$10, but the owner needs to cost \$100 at the first time to enhance. The price of each enhancement will be doubled after the owner chooses that. If the owner doesn't have enough money, the game will show a warning message and force the owner to sell hotdogs. After visiting these 4 areas, the game will show how much the owner earns from hotdogs and ask the user to continue or to exit. If the user chooses to continue, the game will go on directly. If the user chooses to exit the game, the user will exit the game and receive a goodbye message. The table below shows the different messages in different situations.

<i>Situations</i>	<i>Messages</i>
Beginning of the game	Welcome, young boss!
Beginning of each day	Chop chop, It's dawn.
Beginning of each area	You are at Area %d. You have %d dollars. You need %d minutes to make a hotdog. The price of a hotdog is \$%d.
Ask the user to choose one action	Please choose which action you want to take: [1] Sell the hotdogs (+ \$%d) [2] Improve your cooking speed (- \$%d / - 1 min for making a hotdog) [3] Improve your hotdog flavor (- \$%d / + \$10 for each hotdog) Enter the number:
Message when the user choose to	You make %d hotdogs here!

sell the hotdogs	You earn \$%d!
Message when the user choose to cultivate cooking techniques but doesn't have enough money	Can't you tell how poor you are? Go vending your hotdogs instead of thinking about self-improvement!
Message when the speed of making hotdogs could not be faster	Do you want to travel through time? GO WORK!!
Message when the user choose to improve cooking speed	You glimpse the secret of wind. Your hands can move faster now.
Message when the user choose to improve the taste of hotdogs	You feel the soul of the ingredients. Your hotdogs are more appetizing now.
After visiting 4 areas	Well done, you earn \$%d today.
Ask the user to decide whether to continue the game	Do you want to continue or exit? [1] Continue [2] Exit Enter the number:
Message when the user choose to leave the game	We will miss you. Bye!
Message when the user enter a number outside the input range	Invalid input!!!!

The table below shows the example input and output. The numbers with underscores are the input from users.

You can also download the example input and output on Domjudge.

#### Example #1 (Input: 1 2 2 1 2)

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Welcome, young boss!
Chop chop, It's dawn.
You are at Area 1.
You have 100 dollars.
You need 15 minutes to make a hotdog.
The price of a hotdog is $30.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $360)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $100 / + $10 for each hotdog)
Enter the number: 1
You make 12 hotdogs here!
You earn $360!
You are at Area 2.
You have 460 dollars.
You need 15 minutes to make a hotdog.

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The price of a hotdog is $30.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $360)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $100 / + $10 for each hotdog)
Enter the number: 2
You glimpse the secret of wind.
Your hands can move faster now.
You are at Area 3.
You have 410 dollars.
You need 14 minutes to make a hotdog.
The price of a hotdog is $30.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $360)
  [2] Improve your cooking speed (- $100 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $100 / + $10 for each hotdog)
Enter the number: 2
You glimpse the secret of wind.
Your hands can move faster now.
You are at Area 4.
You have 310 dollars.
You need 13 minutes to make a hotdog.
The price of a hotdog is $30.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $390)
  [2] Improve your cooking speed (- $200 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $100 / + $10 for each hotdog)
Enter the number: 1
You make 13 hotdogs here!
You earn $390!
Well done, you earn $750 today.
Do you want to continue or exit?
  [1] Continue
  [2] Exit
Enter the number: 2
We will miss you. Bye!
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#### Example #2 (Input: 3 3 5 1 1 7 1 1 1 1 2)

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Welcome, young boss!
Chop chop, It's dawn.
You are at Area 1.
You have 100 dollars.
You need 15 minutes to make a hotdog.
The price of a hotdog is $30.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $360)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $100 / + $10 for each hotdog)
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Enter the number: 3  
You feel the soul of the ingredients.  
Your hotdogs are more appetizing now.  
You are at Area 2.  
You have 0 dollars.  
You need 15 minutes to make a hotdog.  
The price of a hotdog is \$40.  
Please choose which action you want to take:  
    [1] Sell the hotdogs (+ \$480)  
    [2] Improve your cooking speed (- \$50 / - 1 min for making a hotdog)  
    [3] Improve your hotdog flavor (- \$200 / + \$10 for each hotdog)  
Enter the number: 3  
Can't you tell how poor you are?  
Go vending your hotdogs instead of thinking about self-improvement!  
You make 12 hotdogs here!  
You earn \$480!  
You are at Area 3.  
You have 480 dollars.  
You need 15 minutes to make a hotdog.  
The price of a hotdog is \$40.  
Please choose which action you want to take:  
    [1] Sell the hotdogs (+ \$480)  
    [2] Improve your cooking speed (- \$50 / - 1 min for making a hotdog)  
    [3] Improve your hotdog flavor (- \$200 / + \$10 for each hotdog)  
Enter the number: 5  
Invalid input!!!!  
Please choose which action you want to take:  
    [1] Sell the hotdogs (+ \$480)  
    [2] Improve your cooking speed (- \$50 / - 1 min for making a hotdog)  
    [3] Improve your hotdog flavor (- \$200 / + \$10 for each hotdog)  
Enter the number: 1  
You make 12 hotdogs here!  
You earn \$480!  
You are at Area 4.  
You have 960 dollars.  
You need 15 minutes to make a hotdog.  
The price of a hotdog is \$40.  
Please choose which action you want to take:  
    [1] Sell the hotdogs (+ \$480)  
    [2] Improve your cooking speed (- \$50 / - 1 min for making a hotdog)  
    [3] Improve your hotdog flavor (- \$200 / + \$10 for each hotdog)  
Enter the number: 1  
You make 12 hotdogs here!  
You earn \$480!  
Well done, you earn \$1440 today.  
Do you want to continue or exit?  
    [1] Continue  
    [2] Exit  
Enter the number: 7  
Invalid input!!!!

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Do you want to continue or exit?
  [1] Continue
  [2] Exit
Enter the number: 1
Chop chop, It's dawn.
You are at Area 1.
You have 1440 dollars.
You need 15 minutes to make a hotdog.
The price of a hotdog is $40.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $480)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $200 / + $10 for each hotdog)
Enter the number: 1
You make 12 hotdogs here!
You earn $480!
You are at Area 2.
You have 1920 dollars.
You need 15 minutes to make a hotdog.
The price of a hotdog is $40.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $480)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $200 / + $10 for each hotdog)
Enter the number: 1
You make 12 hotdogs here!
You earn $480!
You are at Area 3.
You have 2400 dollars.
You need 15 minutes to make a hotdog.
The price of a hotdog is $40.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $480)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $200 / + $10 for each hotdog)
Enter the number: 1
You make 12 hotdogs here!
You earn $480!
You are at Area 4.
You have 2880 dollars.
You need 15 minutes to make a hotdog.
The price of a hotdog is $40.
Please choose which action you want to take:
  [1] Sell the hotdogs (+ $480)
  [2] Improve your cooking speed (- $50 / - 1 min for making a
hotdog)
  [3] Improve your hotdog flavor (- $200 / + $10 for each hotdog)
Enter the number: 1
You make 12 hotdogs here!
You earn $480!
Well done, you earn $1920 today.
Do you want to continue or exit?
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[1] Continue
[2] Exit
Enter the number: 2
We will miss you. Bye!
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