## Pizza Calories

A Pizza is made of a dough and different toppings. You should model a class **Pizza** which should have a **name**, **dough** and **toppings** as fields. Every type of ingredient should have its own class.

|  |  |
| --- | --- |
| **Pizza** | |
| - | name: String |
| - | dought: Dough |
| - | toppings: List<Topping> |
| + | Piza (String, int numberOfToppings) |
| - | setToppings(int) : void |
| - | setName(String) : void |
| + | setDough(Dough) : void |
| + | getName(): String |
| + | addTopping (Topping) : void |
| + | getOverallCalories () : double |

Every ingredient has **different fields**: the dough can be **white** or **wholegrain** and in addition it can be **crispy**, **chewy** or **homemade**. The toppings can be of type **meat**, **veggies**, **cheese** or **sauce**. Every ingredient should have a **weight** in grams and a method for calculating its calories according its type. Calories per gram are calculated through modifiers. Every ingredient has **2 calories per gram** **as a base** and a **modifier** that gives the exact calories.

|  |  |
| --- | --- |
| **Dough** | |
| - | flourType: String |
| - | bakingTechnique: String |
| - | weight: double |
| + | Dought (String, String, double) |
| - | setWeight(double): void |
| - | setFlourType(String): void |
| - | setBakingTechnique(String): void |
| + | calculateCalories (): double |

|  |  |
| --- | --- |
| **Topping** | |
| - | toppingType: String |
| - | weight: double |
| + | Topping (String, double) |
| - | setToppingType (String): void |
| - | setWeight (double): void |
| + | calculateCalories (): double |

**Your job** is to model the classes in such a way that they are **properly encapsulated** and to provide a public method for every pizza that **calculates its calories according to the ingredients it has**.

|  |  |
| --- | --- |
| **Dough Modifiers** | **Toppings Modifiers** |
| * White – 1.5; * Wholegrain – 1.0; * Crispy – 0.9; * Chewy – 1.1; * Homemade – 1.0; | * Meat – 1.2; * Veggies – 0.8; * Cheese – 1.1; * Sauce – 0.9; |

For example, **white** dough has a modifier of **1.5**, a **chewy** dough has a modifier of **1.1**, which means that a white chewy dough weighting **100 grams** will have (2 \* 100) \* 1.5 \* 1.1 = **330.00 total calories**.

For example, **meat** has a modifier of **1.2**, which means that a meat weighting **50 grams** will have (2 \* 50) \* 1.2 = 120.00 total calories.

### Data Validation

**Data Validation must be in the order of the Input Data.**

* If invalid flour type or an invalid baking technique is given an exception is thrown with the message "**Invalid type of dough.**".
* If dough weight is outside of range [1..200] throw an exception with the message "**Dough weight should be in the range [1..200]**."
* If topping is not one of the provided types throw an exception with the message "**Cannot place {name of invalid argument} on top of your pizza.**"
* If topping weight is outside of range [1..50] throw an exception with the message "**{Topping type name} weight should be in the range [1..50].**".
* If name of the pizza is **empty, only whitespace** or longer than 15 symbols throw an exception with the message "**Pizza name should be between 1 and 15 symbols.**".
* If number of topping is outside of range [0..10] throw an exception with the message "**Number of toppings should be in range [0..10].**".

The input for a pizza consists of several lines:

* On the first line is the **pizza name** and the **number of toppings it has** in format:
  + Pizza {**pizzaName**} {**numberOfToppings**}
* On the second line you will get input for the **dough** in format:
  + Dough {**flourType**} {**bakingTechnique**} {**weightInGrams**}
* On the next lines, you will receive every topping the pizza has, until an**"END"** command is given:
  + Topping {**toppingType**} {**weightInGrams**}

If creation of the pizza was **successful** print on a single line the name of the pizza and the **total calories** it has, rounded to the second digit after the decimal point.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Pizza Meatless 2  Dough Wholegrain Crispy 100  Topping Veggies 50  Topping Cheese 50  END | Meatless - 370.00 |
| Pizza Bulgarian 20  Dough Tip500 Balgarsko 100  Topping Sirene 50  Topping Cheese 50  Topping Krenvirsh 20  Topping Meat 10  END | Number of toppings should be in range [0..10]. |
| Pizza Bulgarian 2  Dough Tip500 Balgarsko 100  Topping Sirene 50  Topping Cheese 50  Topping Krenvirsh 20  Topping Meat 10  END | Invalid type of dough. |
| Pizza Bulgarian 2  Dough White Chewy 100  Topping Sirene 50  Topping Cheese 50  Topping Krenvirsh 20  Topping Meat 10  END | Cannot place Sirene on top of your pizza. |