

Satisfactory

Only that solution is graded the code of which is checked by a teacher! Implement the following plan!

Given a city which consists of districts. Each district has a name and its wonders. A wonder max be a museum, cathedral, or castle. A wonder has x and y coordinates, its year of construction, and its level of interest. The expected time spent at each wonder is calculated as a factor number multiplied by its level of interest.

The factor is calculated as in the following plan.

Implement the following plan and answer the following questions:

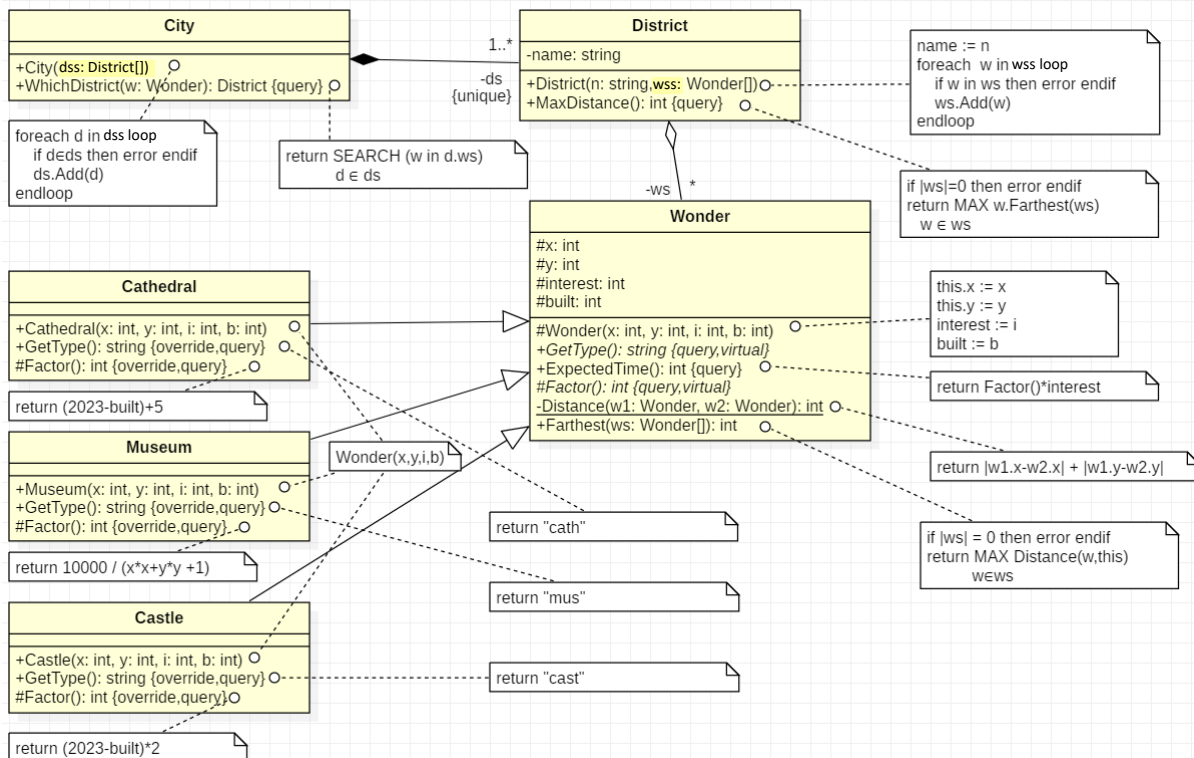
1. How much is the biggest distance between two wonders in a district?
2. Give the district where a given wonder is in!

The program should write out the answer for these questions, where the district's index for the first question is the **first data of the input file**. The **second two numbers in the input file** store the coordinates of the wonder which is searched in the districts (2nd question).

The rest of the file describes the districts and their wonders in the following structure:

```
districtName wonderCount
type coordX coordY interestLevel yearOfBuild
...
```

where districtName represents the name of the district, wonderCount stores the number of wonders in that district, type means the type of the wonder (museum/cathedral/castle), coordX and coordY denote the coordinates of the wonder, interestLevel stands for the level of interest for the wonder, and finally, yearOfBuild shows the year in which the wonder was constructed.



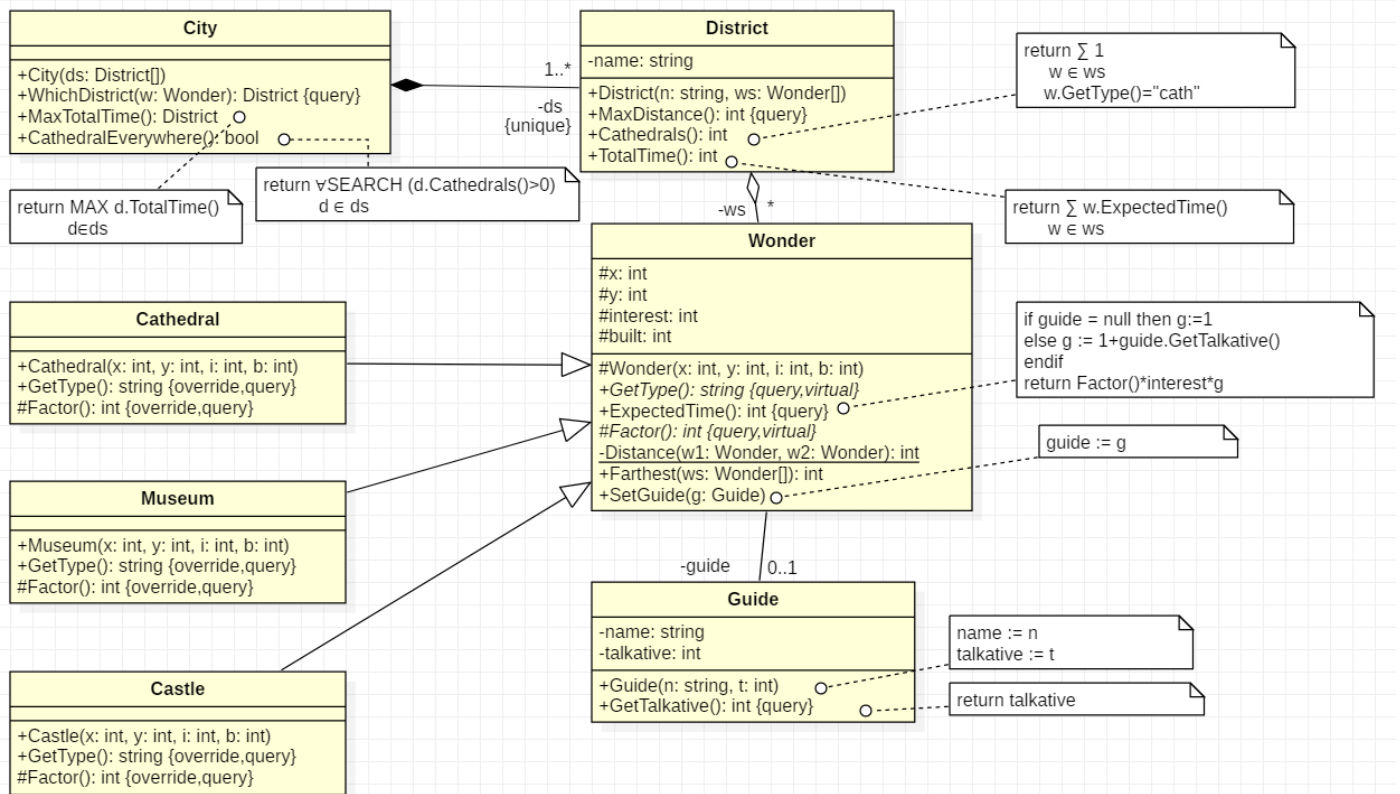
Excellent

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A tourist guide may be working at each wonder. Depending on his talkativeness, the expected time spent at the wonder is modified.

Answer the following questions in addition:

1. How many cathedrals are there in a district?
2. Give the district where the most time may be spent.
3. Does every district have a cathedral?



The program should write out the answer for the 2nd and 3rd questions after the answers of the satisfactory level, but in a new line. The structure of the file is the same, there is a slight difference in the data of the wonders only:

```
districtName wonderCount
type coordX coordY interestLevel yearOfBuild n
type coordX coordY interestLevel yearOfBuild y guideName guideTalkativeness
...
```

The initial data means the same as in the satisfactory level. Afterwards, for each wonder, if there is an 'n' character, it means that there is not any guide for that wonder. If there is a 'y' character, it means that there is a guide whose attributes are stored in the guideName and guideTalkativeness values.