Problem 8

Do You Mine?

4 Points

Program Name: mine.cpp Input File: mine.dat

Your company mines for several minerals. Before they mine an area, they take a core sample and analyze it. That core sample is broken down into smaller uniform "samplets" and run through a scanning machine that identifies the minerals in it. Your program will analyze the report from the scanning machine and then determine if further mining is warranted based on the following cost/benefit parameters.

Cost/Product	Samplet Code	Revenue per Unit
Nickel	N	0.35
Platinum	P	4.93
Uranium	U	2.32
Copper	C	0.63
Iron	I	0.86
Sulfur	S	1.15
Dirt	D	0.00

In addition, there is a cost of mining of 0.17 for every unit mined no matter what is produced from the unit. This includes all costs for equipment, labor, transportation, processing, packaging, taxes, insurance, environmental restoration, and research.

Your program will be given the results from the scanning as a block of 50 samplets and determine the cost/benefit total for this sample. You will then determine which of the three strategies should be followed.

Strategy	Criteria	Description
Do Not Mine	Total < -1.00	Sample indicates mining will not be profitable.
Further Sampling	-1.00<=Total<=5.00	Sample is inconclusive and further samples should be taken.
Begin Mining	Total > 5.00	Sample indicates mining will be profitable.

For example, if your program is given the following sample report from the scanning machine:

```
DDDDCDDDDUUUCCCCDDDDDDDDDIDDDDDSDDDDSSSDDDDDDDSDDDN
```

You would determine that the total cost is $8.50 and that the revenue would be $17.07. Therefore, the cost/benefit total for this sample would be $8.57 and the strategy would be to begin mining.

Input

Input to your program consists of a series of samples. Each sample is a string of 50 characters from the list of Samplet Codes above on a line by itself.

Output

For each sample, your program should print one of the strategies on a line by itself based on the evaluation of the samplets. You should print the strategy exactly as it appears in the Strategy column above starting in column 1.

Example: Input File

```
DDDDCDDDDUUUCCCCDDDDDDDDDIDDDDDSDDDDSSSDDDDDDDSDDDN
DDDDDDCCCDDDDDDUDDDDDDDDDDSSDDDSSSDDDDDDNNNNNDDDDD
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
```

Output to screen

```
Begin Mining
Further Sampling
Do Not Mine
```