

Using Functions!

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Problem 0 (yournumber % 3)

Read in the following file which contains population information for cities over various years. The first line contains a city name, its size in square miles, and the number of years of population data available (all numbers in the file are integers > 0). The subsequent lines have a year and a population. Display to the screen a bar chart showing the number of people per square mile. Use one * for each 1000 people (always round up, 1001 = **). Use at least 2 functions in addition to main().

Input File:

```
ForestGrove 5 4
1925 10000
1950 15000
1975 20000
2000 30004
Tualatin 4 3
1900 4000
1950 8000
2000 12000
```

Screen Output:

People Per Square Mile

```
ForestGrove
1925 ***
1950 ***
1975 ****
2000 *****
Tualatin
1900 *
1950 **
2000 ***
```

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Problem 1 (yournumber % 3)

Read in the following file and print out the integer you read (all integers will be >0) and whether or not that integer is even or odd. Also print whether or not it is prime. Remember, a prime number is only divisible by itself and 1. At the end, print out how many prime integers you found. Use at least two functions other than main().

Input File:

```
1
9
8
4
11
13
24
```

Screen Output:

```
1: odd: prime
9: odd: non-prime
8: even: non-prime
4: even: non-prime
11: odd: prime
13: odd: prime
24: even: non-prime

3 prime integers
```

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Problem 2 (yournumber % 3)

Read in the following file with contains pairs of cities and the distances between the cities. The distance is given in either miles (m) or kilometers (k) (all numbers are integers > 0). Produce a new file that contains each pair of cities and the distance between them in both miles and kilometers. Display the miles and kilometers to 1 decimal place. Use at least two functions other than main().

1 km = 0.62 miles

1 mile = 1.6 km

Input File:

ForestGrove Portland m 26
Portland Seattle k 278

Output file:

ForestGrove Portland m 26 k 41.6
Portland Seattle m 166.8 k 278

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