COP 3223 Program #3: If Statement Potpouri

Program A: Olympics (olympics.c)

The modern Summer Olympic Games started in 1986. The original plan was to host the games every four years. Unfortunately, for various reasons, there have been some exceptions:

1916, 1940 and 1944 were canceled due to WWI and WWII

2020 games were delayed until 2021.

For this program, you will ask the user to enter a year in between 1800 and 2024, and you will output whether or not the Summer Olympic Games were played that year.

Input Specification

Let **y** be the year entered by the user. You are guaranteed that **y** is an integer and $1800 \leq \mathbf{y} \leq 2024$.

Output Specification

If **y** was a year when the summer Olympic games occurred, print a statement with the following format:

```
Summer Olympic Games were hosted in y.
```

If no summer Olympics were held in year **y**, then print a statement with the following format:

```
There were no summer Olympic Games in y.
```

In order to get full credit, you must minimize the number of if-else branches you have in your code. (One could trivially code in every case, but that goes directly against the point of the assignment) So credit is based on correctness and succinctness.

Sample Program Run (User Input in Bold and Italics)

```
Please enter a year in between 1800 and 2025, inclusive.
1916
There were no summer Olympic Games in 1916.
```

Sample Program Run (User Input in Bold and Italics)

```
Please enter a year in between 1800 and 2025, inclusive.
2021
Summer Olympic Games were hosted in 2021.
```

Program B: Two Questions (twoquestions.c)

In class, to illustrate nested if-else statements, a version of a 20 questions game (with two questions) was shown to uniquely determine an individual out of a family of four people. Write our own version of this game with any group of four people you would like.

Note: In order to do this, you have to have been in class on September 10th, 2025. If you were not, look at the sample programs coded live posted from that day and talk to someone from class.

Program C: Arup's Grading Scale (arupgrade.c)

As you know by now, Arup does not use the A = 90 – 100, B = 80 – 89 grading scale. Instead, at the end of the semester, he picks grade lines for A, B, C and D, respectively. A grade line is the minimum score to achieve that letter grade. For the purposes of this question, each grade line is guaranteed to be a positive integer and the grade line for an A will be strictly less than 100, the grade line for a B will be strictly less than the line for an A, the grade line for a C will be strictly less than the line for a B, and the grade line for a D will be strictly less than the line for a C.

Write a program that asks the user to enter each of the grade lines for an A, B, C and D, respectively, followed by entering in a grade the student earned.

Input Specification

Let the grade lines entered by the user be named, **a, b, c** and **d**, respectively. Each of these is guaranteed to be an integer such that $0 < \mathbf{d} < \mathbf{c} < \mathbf{b} < \mathbf{a} < 100$.

Output Specification

Print a single statement with the following format:

```
You earned a letter grade of X.
```

where X is the letter grade (A, B, C, D or F) the student earned.

Sample Program Run (User Input in Bold and Italics)

```
What is the grade line for an A?
82
What is the grade line for a B?
68
What is the grade line for a C?
53
What is the grade line for a D?
34
What percentage grade did you earn?
67
You earned a letter grade of C.
```

Sample Program Run (User Input in Bold and Italics)

```
What is the grade line for an A?
82
What is the grade line for a B?
68
What is the grade line for a C?
53
What is the grade line for a D?
34
What percentage grade did you earn?
99
You earned a letter grade of A.
```

Sample Program Run (User Input in Bold and Italics)

```
What is the grade line for an A?
82
What is the grade line for a B?
68
What is the grade line for a C?
53
What is the grade line for a D?
34
What percentage grade did you earn?
30
You earned a letter grade of F.
```

Deliverables

Please submit three separate .c files for your solutions to these problems via WebCourses by the designated due date:

Program A: **olympics.c**
Program B: **twoquestions.c**
Program C: **arupgrade.c**

Please make sure to include a header comment and internal comments in your code and indent when appropriate.