EXERCISE 2

Go as far as you can!

2.1 (*Converting Celsius to Fahrenheit*) Write a program that reads a Celsius degree in double from the console, then converts it to Fahrenheit and displays the result. The formula for the conversion is as follows:

```
fahrenheit = (9 / 5) * celsius + 32
```

Hint: In Java, `9 / 5` is `1`, but `9.0 / 5` is `1.8`.

Here is a sample run:

```
Enter a degree in Celsius: 43 ↵Enter
43 Celsius is 109.4 Fahrenheit
```

2.2 (*Finding the character of an ASCII code*) Write a program that receives an ASCII code (an integer between `0` and `128`) and displays its character. For example, if the user enters `97`, the program displays character `a`. Here is a sample run:

```
Enter an ASCII code: 69 ↵Enter
The character for ASCII code 69 is E
```

2.3 (*Summing the digits in an integer*) Write a program that reads an integer between `0` and `1000` and adds all the digits in the integer. For example, if an integer is `932`, the sum of all its digits is `14`.

Hint: Use the `%` operator to extract digits, and use the `/` operator to remove the extracted digit. For instance, `932 % 10 = 2` and `932 / 10 = 93`.

Here is a sample run:

```
Enter a number between 0 and 1000: 999 ↵Enter
The sum of the digits is 27
```

2.4 (*Assigning grades*) Write a program that reads student scores, gets the best score, and then assigns grades based on the following scheme:

Grade is A if score is >= best − 10;
Grade is B if score is >= best − 20;
Grade is C if score is >= best − 30;
Grade is D if score is >= best − 40;
Grade is F otherwise.

The program prompts the user to enter the total number of students, then prompts the user to enter all of the scores, and concludes by displaying the grades. Here is a sample run:

```
Enter the number of students: 4 Enter
Enter 4 scores: 40 55 70 58 Enter
Student 0 score is 40 and grade is C
Student 1 score is 55 and grade is B
Student 2 score is 70 and grade is A
Student 3 score is 58 and grade is B
```