1. Write a program that sums together numbers. Ask a user to provide two integers. Calculate the sum of all the integers from one number to the other (inclusive). The user will not necessarily enter in the lesser number first, so make sure your code accounts for that.

Here are some example outputs:

# Example #1

What is the first number? 4

What is the second number? 472

The sum of all the integers from 4 to 472 is 111622.

# Example #2

What is the first number? 35

What is the second number? 3

The sum of all the integers from 3 to 35 is 627.

2. Write a program to determine whether or not a year is a leap year. Here are the rules to determine leap years:

* Year numbers that are divisible by 4  *are*  leap years.
* There’s an excep on to the previous rule! Year numbers that are divisible by 100 (for example, 1900)  *are not*  leap years.
* There’s an excep on to the previous rule! Years that are divisible by 400 (for example, 2000)  *are*  leap years.

Ask the user for a year and determine if it is a leap year.

Here are sample outputs:

# Example #1

What year are you curious about? 2004 2004 is a leap year.

# Example #2

What year are you curious about? 1800 1800 is not a leap yea r.

3. Write a text-abbrevia on translator for your ancient professor that translates each of these text-abbrevia ons to its full phrase.

|  |  |
| --- | --- |
| Abbrevia on | Transla on |
| lol | laugh out loud |
| brb | be right back |
| nbd | no big deal |
| idk | I don’t know |

Here are some example outputs:

# Example #1

Text lingo: brb

Translation: be right back

# Example #2

Text lingo: idk

Translation: I don’t know

1. Write a program that calculates the factorial of a number, using loops. Ask the user for a non-nega ve integer value and then calculate the factorial using the equa on 𝑛 ! = 1 × 2 × . .. × 𝑛 .

Here is a sample output:

What is your non-negative integer? 15 15! is 1,307,674,368,000.

1. Given the following code, what is the output of this program?

Python

num1

=

1234567

.

8912345

num2

=

9876543

.

2198765

formatted\_string

=

f"Number 1: {num1:,.2f}\nNumber

2:

{num2:,.2f}"

print

(

formatted\_string

)

1. Write a program that simulates a game where two players each roll a fair six-sided die once. In this game, the player with the higher roll wins. If both players roll the same number, it's a e. Your program should print out the roll values for each player and who the winner of the game is.

Here are some example outputs:

# Example #1

Player 1 rolled: 6

Player 2 rolled: 4

The winner is: Player 1

# Example #2

Player 1 rolled: 3

Player 2 rolled: 5

The winner is: Player 2

7. Write a program that determines if students have passed or failed an exam based on their score. Ask the user for 5 student grades which range from 0 - 100 and determine if they passed or failed. A passing score is considered to be 60 or higher.

Here are some example outputs:

# Example #1

What is the student’s exam grade? 60 Student 1 did pass the exam

What is the student’s exam grade? 50 Student 2 did fail the exam

What is the student’s exam grade? 100 Student 3 did pass the exam

What is the student’s exam grade? 20 Student 4 did fail the exam

What is the student’s exam grade? 80

Student 5 did pass the exam

# Example #2

What is the student’s exam grade? 13 Student 1 did fail the exam

What is the student’s exam grade? 88 Student 2 did pass the exam

What is the student’s exam grade? 25 Student 3 fail pass the exam

What is the student’s exam grade? 55 Student 4 did fail the exam

What is the student’s exam grade? 90

Student 5 did pass the exam

8. Write a program that determines the overdue fines for borrowed books. As the user to provide the number of days the book is overdue. Here are the rules to determine the fine amounts:

* If the book is overdue by 1-7 days, the fine is $0.50 per day.
* If the book is overdue by 8-14 days, the fine is $1.00 per day.
* If the book is overdue by 15 or more days, the fine is $1.50 per day.
* If the book is not overdue, there is no fine.

Here are some example outputs:

# Example #1

Enter the number of days overdue: 6

The fine amount for 6 days overdue is: $3.00

# Example #2

Enter the number of days overdue: 15

The fine amount for 15 days overdue is: $12.00