Day – 1 (Conditional, Repetition, and String manipulation)

1. Print the following patterns.

|  |  |
| --- | --- |
| Input | Output |
| 3 | \*\*1  \*12  123 |
| 5 | \*\*\*\*1  \*\*\*12  \*\*123  \*1234  12345 |
| 7 | \*\*\*\*\*\*1  \*\*\*\*\*12  \*\*\*\*123  \*\*\*1234  \*\*12345  \*123456  1234567 |

1. Print the following patterns.

|  |  |
| --- | --- |
| Input | Output |
| 3 | \*\*1  \*123  12345  \*123  \*\*1 |
| 4 | \*\*\*1  \*\*123  \*12345  1234567  \*12345  \*\*123  \*\*\*1 |
| 5 | \*\*\*\*1  \*\*\*123  \*\*12345  \*1234567  123456789  \*1234567  \*\*12345  \*\*\*123  \*\*\*\*1 |

1. Print the following pattern.

|  |  |
| --- | --- |
| Input | Output |
| 3 | \*  \*\*  \*\*\*  \*\*  \* |
| 4 | \*  \*\*  \*\*\*  \*\*\*\*  \*\*\*  \*\*  \* |
| 5 | \*  \*\*  \*\*\*  \*\*\*\*  \*\*\*\*\*  \*\*\*\*  \*\*\*  \*\*  \* |

1. The program reads a student's score from the console, and categorizes the score into grades such as A, B, C, D, or F based on predefined score ranges.

Constraints:

0 <= score <= 100

A >= 90

B >= 80

C >= 70

D >= 60

F < 60

|  |  |
| --- | --- |
| Input | Output |
| 72 | C |
| 33 | F |
| 120 | “Invalid” |
| 90 | A |

1. Check if the given year is a leap year or not.

|  |  |
| --- | --- |
| Input | Output |
| 2024 | 2024 is a leap year. |
| 1990 | 1990 is not a leap year. |
| 600 | 600 is not a leap year. |
| 4024 | 4024 is a leap year. |

1. Input is a sentence with yelling words which are multiple question marks "?" or exclamation marks "!". Your task is to transform the sentence by using only one "?" or "!" for each yelling word.

|  |  |
| --- | --- |
| Input | Output |
| Why??? | Why? |
| English!!!!! or Spanish???? | English! or Spanish? |
| It!!! Is raining. | It! is raining. |
| Don’t!!! Touch me!!! | Don’t! Touch me! |
| It is broken!!!!! | It is broken! |
| Why!!! are you running???? | Why! are you running? |
| abcd???cdef???dfd!!! | abcd?cde?dfd! |

1. Return true if the string "cat" and "rat" appear the same number of times in the given string.

|  |  |
| --- | --- |
| Input (lowercase letters) | Output |
| catrat | true |
| catcat | false |
| 1cat1ca1rarat | true |
| cr | true |
| 2catratcat2rat | true |