

[12 marks] Create a program that reads a integer from the user and displays a multiplication table for all integers from 1 up to and including the value entered by the user. The multiplication table should include a header row that labels all of the columns, and each row should be labelled with its value. Your program should display an appropriate error message if the value entered by the user is less than 1. It should report a different appropriate error message if the value entered by the user is greater than 12.

Sample Run #1:

```
Enter the maximum value for the table: 2
    1  2
  1  1  2
  2  2  4
```

Sample Run #2:

```
Enter the maximum value for the table: 8
    1  2  3  4  5  6  7  8
  1  1  2  3  4  5  6  7  8
  2  2  4  6  8 10 12 14 16
  3  3  6  9 12 15 18 21 24
  4  4  8 12 16 20 24 28 32
  5  5 10 15 20 25 30 35 40
  6  6 12 18 24 30 36 42 48
  7  7 14 21 28 35 42 49 56
  8  8 16 24 32 40 48 56 64
```

Sample Run #3:

```
Enter the maximum value for the table: 0
Error: That maximum value was too small.
```

Sample Run #4:

```
Enter the maximum value for the table: 22
Error: That maximum value was too large.
```

Hint: The %4d format specifier formats a number as a base 10 integer using 4 spaces. This format specifier helps line up columns of numbers by ensuring that a consistent number of characters is used regardless of the magnitude of the number.

Use the following lines to create your program. Some lines may not be required for a correct solution. Lines may be used multiple times.

```
1: current_row = "%4d" % row_num
2: current_row = current_row + "%4d" % current_value
3: current_row = current_row + current_value
4: current_value = row_num * col_num
5: elif max > 12:
6: elif max >= 12:
7: else:
```

```
8: for col_num in range(1, max - 1):
9: for col_num in range(1, max + 1):
12: for col_num in range(1, max):
13: for row_num in range(1, max + 1):
14: for row_num in range(1, max):
15: header = "  "
16: header = header + "%4d" % col_num
17: header = header + col_num
18: if max < 0:
19: if max < 1:
23: max = int(input("Enter the maximum value for the table: "))
24: print("Error: That maximum value was too large.")
25: print("Error: That maximum value was too small.")
26: print(current_row)
27: print(current_value)
28: print(header)
```