

CS101. Week 2 - Grains on a Chessboard

Calculate the number of grains of wheat on a chessboard given that the number on each square doubles. There are 64 squares on a chessboard (where square 1 has one grain, square 2 has two grains, and so on).

Write 2 functions.

1. how many grains were on a given square
 - a. `def square(number)`
 - b. Input: the number of the square. Valid square numbers are 1 to 64
 - c. Check if invalid square number is given - less than 1 or greater than 64. If so raise this `ValueError: raise ValueError("Square number out of range")`
2. the total number of grains on the chessboard
 - a. `def total()` # sum of all the grains on the chessboard

The Test Cases table lists more sample inputs and outputs.

Code Template (grains.py)

```
"""
Grains on a Chess Board
"""
def square(number):
    pass

def total():
    pass
```

Sample output

```
>>> print(square(1))
1
>>> print(square(4))
8
```

Test Cases

Function	Inputs	Output	Remarks
square	8	128	
square	13	4096	
square	60	576460752303423488	
square	0	raise ValueError("Square number out of range")	
square	65	raise ValueError("Square number out of range")	
total		18446744073709551615	
