PH 354: hw 2, problem 1

Alankar Dutta

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Python 3 has integers of arbitrary length. So calculating 200! is done without any problem in Python 3.
However changing to floating point raises an Overflow Exception. This is because 200! is a floating point number greater than what Python 3 can normally handle. On issuing the following command,

```
import sys
sys.float_info
```

gives the following output:

```
sys.float_info(max=1.7976931348623157e+308, max_exp=1024, max_10_exp=308,
min=2.2250738585072014e-308, min_exp=-1021, min_10_exp=-307, dig=15,
mant_dig=53, epsilon=2.220446049250313e-16, radix=2, rounds=1)
```

Clearly 200! is beyond this limit which can be verified from the Stirling approximation

$$200! \approx 10^{\frac{200\ln(200)-200}{\ln(10)}} \approx 10^{373}$$

As a floating point, Python 3 can go upto 170!