Given functions:

$ n, \sqrt{n}, n^{1.5}, n^2, n \log n, n \log \log n, n \log^2 n, \frac{2}{n}, 2n, \frac{2^n}{2}, 37, n^2 \log n, n^3 $

To sort the given functions according to their growth rate from **slowest** to **fastest**, we analyze their asymptotic behavior using **Big-O notation**.

Step 1: Identify Growth Rates

1. **Constant Function** (slowest growth):
    - $ 37 = O(1) $
2. **Inverse Growth** (decreasing function):
    - $ \frac{2}{n} = O(1/n) $ (shrinks as $ n $ increases)
3. **Logarithmic and Sublinear Growth**:
    - $ \sqrt{n} = O(n^{0.5}) $
    - $ n \log \log n $ (grows slightly faster than $ n $)
    - $ n \log n $ (grows faster than $ n \log \log n $)
4. **Polynomial Growth**:
    - $ n = O(n) $
    - $ 2n = O(n) $ (same growth as $ n $, just a constant multiplier)
    - $ n^{1.5} = O(n^{1.5}) $
    - $ n^2 = O(n^2) $
    - $ n^2 \log n $ (slightly faster than $ n^2 $)
    - $ n^3 = O(n^3) $
5. **Exponential Growth** (fastest growth):
    - $ \frac{2^n}{2} = O(2^n) $ (dominates all polynomial functions)

Step 2: Sorting by Growth Order

From slowest to fastest: $ \frac{2}{n}, 37, \sqrt{n}, n, 2n, n \log \log n, n \log n, n^{1.5}, n \log^2 n, n^2, n^2 \log n, n^3, \frac{2^n}{2} $

This order reflects increasing growth rates based on asymptotic analysis.