In [1]:
```
# DSC530-T302
# Stephen Smitshoek
# Week05
# Exercise 5-1
```

In [2]:
```
import scipy.stats
```

In [3]:
```
def main():
    alpha = 1.7 # Median
    xmin = 1    # Minimum
    dist = scipy.stats.pareto(b=alpha, scale=xmin)

    mean = round(dist.mean(), 2)
    print('The mean height it Pareto world is {}m'.format(mean))

    frac_shorter_mean = round(dist.cdf(mean), 2)
    print('The fraction of people shorter the {}m in Pareto world is {}'.format(mean,

    taller_than_1000 = int(round((1 - dist.cdf(1000)) * 7e9, 0))
    print('The number of people in Pareto world taller than 1km is {}'.format(taller_t

    tallest = round(dist.ppf(1 - 1 / 7e9), 1)  # ppf is the inverse of cdf
    print('The tallest person in Pareto world is {}m tall'.format(tallest))
```

In [4]:
```
if __name__ == '__main__':
    main()
```

```
The mean height it Pareto world is 2.43m
The fraction of people shorter the 2.43m in Pareto world is 0.78
The number of people in Pareto world taller than 1km is 55603
The tallest person in Pareto world is 618349.6m tall
```