Statistics Assignment 2

BM Corser

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1. Let $R = (280, 155, 329, 140, 307, 116, 202, 262, 130, 131, 187, 187, 292, 83, 207, 197, 134, 294, 163, 217)$

   (i)

$$\begin{aligned}\bar{x} &= \frac{1}{n} \cdot \sum_{i=0}^{n} R_i \\ &= \frac{1}{20} \cdot (280 + 155 + 329 + 140 + 307 + 116 + 202 + 262 + 130 + \ \cdots + R_n) \\ &= 200.65\end{aligned}$$

   (ii)

$$\begin{aligned}\sigma^2 &= \frac{1}{n-1} \cdot \sum_{i=0}^{n} (\bar{x} - r)^2 \\ &= \frac{1}{19} \cdot ((200.65 - 280)^2 + (200.65 - 155)^2 + \ \ldots) \\ &= \frac{1}{19} \cdot ((-79.35)^2 + 45.65^2 + \ \ldots) \\ &\approx 5161.60789\end{aligned}$$

   (iii)

```
import math
import pandas as pd

DATA = [
    280, 155, 329, 140, 307,
    116, 202, 262, 130, 131,
    187, 187, 292, 83, 207,
    197, 134, 294, 163, 217
]

def main():
    series = pd.Series(DATA)
    mean = sum(DATA) / len(DATA)
    import ipdb;ipdb.set_trace()
```

```
    variance = sum([math.pow(sample - mean, 2) for sample in DATA]) / (le

    print(mean)
    print(variance)

if __name__ == '__main__':
    main()
```