Solution 1

Solution 1 (a)

Online Algorithm Implementation: Mean

```python
import numpy as np
import matplotlib.pyplot as plt
"""
Implementation of online algo from class
read data-1.txt using np.loadtxt(data-1.txt)
"""
data = np.loadtxt
```

ANSWER THIS: *show resilt from code.. idk it print the final mean* ANSWER THIS: *how does online algo mean compare to true mean*

Solution 1

Solution 1 (b)

Plot

mean Δt

ANSWER THIS: *plot all 5000 intermediate values of mean, from code in 1 (a)*

Solution 2

Solution 2 (a)

pseudocode (ko zna??.. niko nista nej zna) for variance

remember $\text{Var}[X] = E[X^2] - E[X]^2$ ANSWER THIS: *how does online algo mean compare to true mean*

Solution 2

Solution 2 (b)

Online Algorithm Implementation: Variance

```python
import numpy as np
import matplotlib.pyplot as plt
"""
Implementation of online algo from class
read data-1.txt using np.loadtxt(data-1.txt)
"""
data = np.loadtxt
```

remember $\text{Var}[X] = E[X^2] - E[X]^2$ ANSWER THIS: *how does online algo variance compare to true variance*

Solution 3

Solution 3 (a)

True Median

```python
import numpy as np
import matplotlib.pyplot as plt
"""
Implementation of online algo from class
read data-1.txt using np.loadtxt(data-1.txt)
"""
data = np.loadtxt
```

ANSWER THIS: *report true median of data-1.txt*

Solution 3

Solution 3 (b)

Random Sample with Replacement Algorithm Implementation: Median

```python
import numpy as np
import matplotlib.pyplot as plt
"""
Implementation of online algo from class
read data-1.txt using np.loadtxt(data-1.txt)
"""
data = np.loadtxt
```

ANSWER THIS: *report true median of data-1.txt*

Solution 3

Solution 3 (c)

Random Sample with Replacement Algorithm Implementation: Median(sample: 500)

just repeat (b) with $n = 500$

Solution 4

something something something

Solution 5

Solution 5 (a)

something something something

Solution 5

Solution 5 (b)

something something something

Solution 6

Solution 6 (a)

something something something

```python
import numpy as np
import matplotlib.pyplot as plt
"""
code different
"""
data = np.loadtxt
```

Solution 6

Solution 6 (b)

something something something

```python
import numpy as np
import matplotlib.pyplot as plt
"""
code different
"""
data = np.loadtxt
```

Solution 7

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Solution 7 (a)

something something something

Solution 7

Solution 7 (b)

something something something