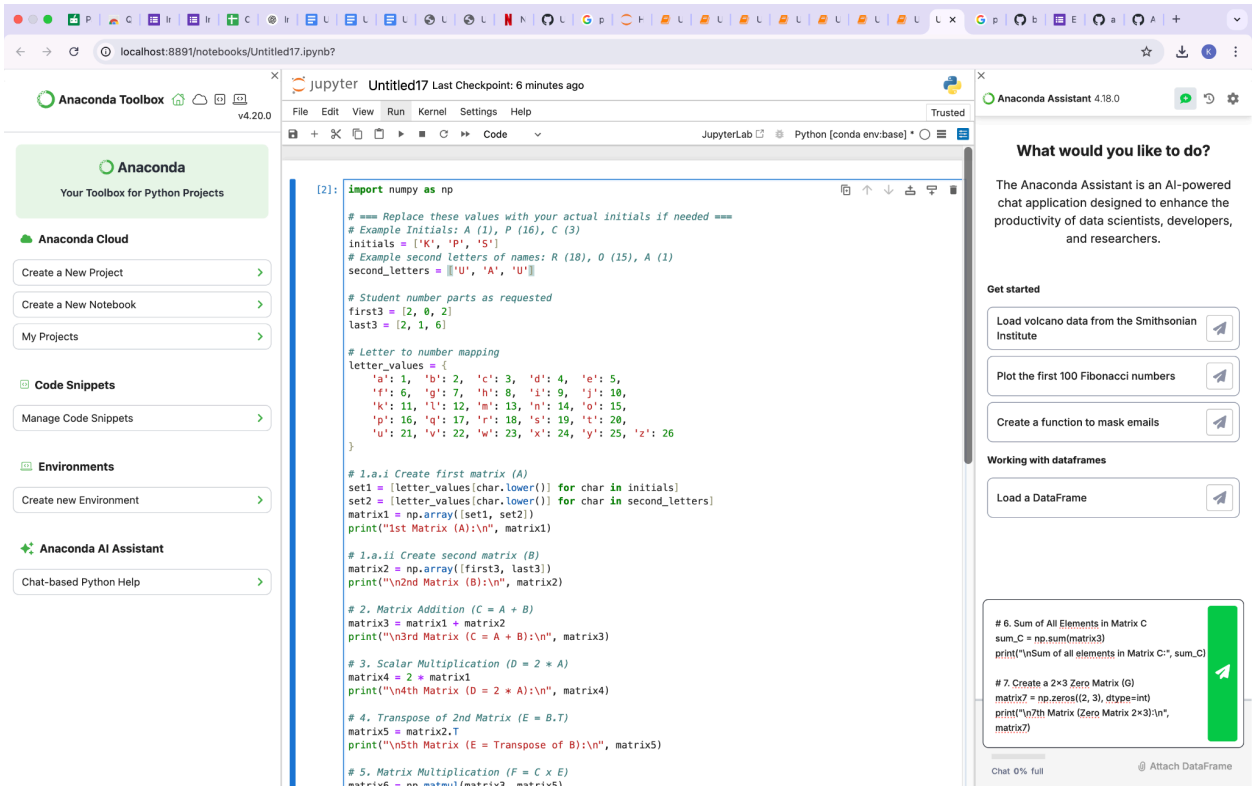
```
1st Matrix (A):
 [[11 16 19]
 [21  1 21]]

2nd Matrix (B):
 [[2 0 2]
 [2 1 6]]

3rd Matrix (C = A + B):
 [[13 16 21]
 [23  2 27]]

4th Matrix (D = 2 * A):
 [[22 32 38]
 [42  2 42]]

5th Matrix (E = Transpose of B):
 [[2 2]
 [0 1]
 [2 6]]

6th Matrix (F = C x E):
 [[ 68 168]
 [100 210]]

Sum of all elements in Matrix C: 102

7th Matrix (Zero Matrix 2x3):
 [[0 0 0]
 [0 0 0]]
```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Code
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Python [conda env:base]
[2]:
import numpy as np
# === Replace these values with your actual initials if needed ===
# Example Initials: A (1), P (16), C (3)
initials = ['K', 'P', 'S']
# Example second letters of names: R (18), O (15), A (1)
second_letters = ['U', 'A', 'U']
# Student number parts as requested
first3 = [2, 0, 2]
last3 = [2, 1, 6]
# Letter to number mapping
letter_values = {
'a': 1, 'b': 2, 'c': 3, 'd': 4, 'e': 5,
'f': 6, 'g': 7, 'h': 8, 'i': 9, 'j': 10,
'k': 11, 'l': 12, 'm': 13, 'n': 14, 'o': 15,
'p': 16, 'q': 17, 'r': 18, 's': 19, 't': 20,
'u': 21, 'v': 22, 'w': 23, 'x': 24, 'y': 25, 'z': 26
}
# 1.a.i Create first matrix (A)
set1 = [letter_values[char.lower()] for char in initials]
set2 = [letter_values[char.lower()] for char in second_letters]
matrix1 = np.array([set1, set2])
print("1st Matrix (A):\n", matrix1)
# 1.a.ii Create second matrix (B)
matrix2 = np.array([first3, last3])
print("\n2nd Matrix (B):\n", matrix2)
# 2. Matrix Addition (C = A + B)
matrix3 = matrix1 + matrix2
print("\n3rd Matrix (C = A + B):\n", matrix3)
# 3. Scalar Multiplication (D = 2 * A)
matrix4 = 2 * matrix1
print("\n4th Matrix (D = 2 * A):\n", matrix4)
# 4. Transpose of 2nd Matrix (E = B.T)
matrix5 = matrix2.T
print("\n5th Matrix (E = Transpose of B):\n", matrix5)
# 5. Matrix Multiplication (F = C x E)
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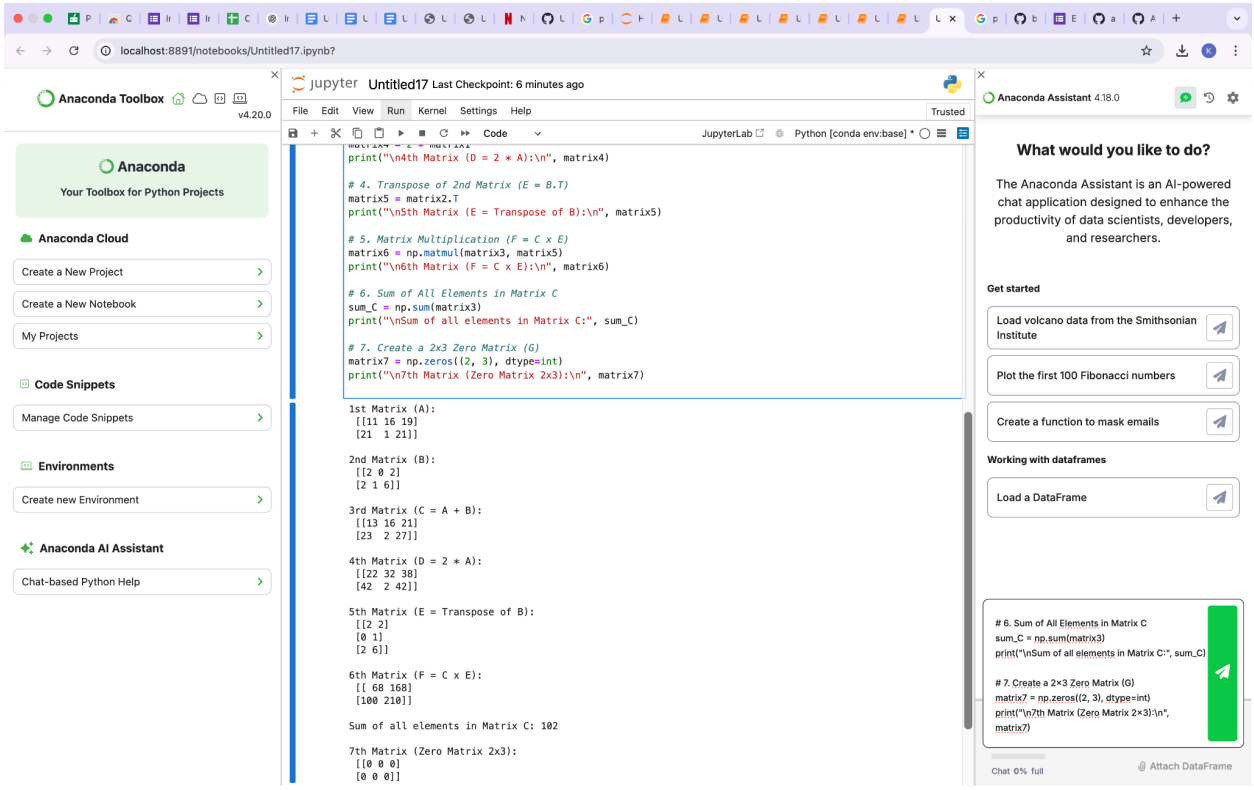
Working with dataframes
Load a DataFrame
# 6. Sum of All Elements in Matrix C
sum_C = np.sum(matrix3)
print("\nSum of all elements in Matrix C:", sum_C)
# 7. Create a 2×3 Zero Matrix (G)
matrix7 = np.zeros((2, 3), dtype=int)
print("\n7th Matrix (Zero Matrix 2×3):\n", matrix7)
Chat 0% full
Attach DataFrame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Trusted
Code
JupyterLab
Python [conda env:base]
print("\n4th Matrix (D = 2 * A):\n", matrix4)
# 4. Transpose of 2nd Matrix (E = B.T)
matrix5 = matrix2.T
print("\n5th Matrix (E = Transpose of B):\n", matrix5)
# 5. Matrix Multiplication (F = C x E)
matrix6 = np.matmul(matrix3, matrix5)
print("\n6th Matrix (F = C x E):\n", matrix6)
# 6. Sum of All Elements in Matrix C
sum_C = np.sum(matrix3)
print("\nSum of all elements in Matrix C:", sum_C)
# 7. Create a 2x3 Zero Matrix (G)
matrix7 = np.zeros((2, 3), dtype=int)
print("\n7th Matrix (Zero Matrix 2x3):\n", matrix7)
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