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Solution

Sure! Here are Python programs for each of the tasks you mentioned:

### 1. Python program to add two Matrices

```python

def add\_matrices(A, B):

return [[A[i][j] + B[i][j] for j in range(len(A[0]))] for i in range(len(A))]

# Example

A = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

B = [[9, 8, 7],

[6, 5, 4],

[3, 2, 1]]

result = add\_matrices(A, B)

print(result)

```

### 2. Python program to multiply two matrices

```python

def multiply\_matrices(A, B):

result = [[0 for \_ in range(len(B[0]))] for \_ in range(len(A))]

for i in range(len(A)):

for j in range(len(B[0])):

for k in range(len(B)):

result[i][j] += A[i][k] \* B[k][j]

return result

# Example

A = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

B = [[9, 8, 7],

[6, 5, 4],

[3, 2, 1]]

result = multiply\_matrices(A, B)

print(result)

```

### 3. Python program for Matrix Product

```python

import numpy as np

A = np.array([[1, 2, 3],

[4, 5, 6],

[7, 8, 9]])

B = np.array([[9, 8, 7],

[6, 5, 4],

[3, 2, 1]])

result = np.dot(A, B)

print(result)

```

### 4. Adding and Subtracting Matrices in Python

```python

def add\_matrices(A, B):

return [[A[i][j] + B[i][j] for j in range(len(A[0]))] for i in range(len(A))]

def subtract\_matrices(A, B):

return [[A[i][j] - B[i][j] for j in range(len(A[0]))] for i in range(len(A))]

# Example

A = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

B = [[9, 8, 7],

[6, 5, 4],

[3, 2, 1]]

addition = add\_matrices(A, B)

subtraction = subtract\_matrices(A, B)

print("Addition:", addition)

print("Subtraction:", subtraction)

```

### 5. Transpose a matrix in a single line in Python

```python

# Example matrix

A = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

transpose = [list(row) for row in zip(\*A)]

print(transpose)

```

### 6. Python | Matrix creation of n\*n

```python

def create\_matrix(n):

return [[0 for \_ in range(n)] for \_ in range(n)]

# Example

n = 3

matrix = create\_matrix(n)

print(matrix)

```

### 7. Python | Get Kth Column of Matrix

```python

def get\_kth\_column(matrix, k):

return [row[k] for row in matrix]

# Example

A = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

k = 1

column = get\_kth\_column(A, k)

print(column)

```

### 8. Python – Vertical Concatenation in Matrix

```python

def vertical\_concatenation(matrix):

return [''.join(row) for row in zip(\*matrix)]

# Example

matrix = [["g", "e", "e", "k"],

["f", "o", "r", "s"],

["g", "e", "e", "k"]]

result = vertical\_concatenation(matrix)

print(result)

```

### 9. Python program to check if a string is palindrome or not

```python

def is\_palindrome(s):

return s == s[::-1]

# Example

s = "radar"

print(is\_palindrome(s))

```

### 10. Python program to check whether the string is Symmetrical or Palindrome

```python

def is\_palindrome(s):

return s == s[::-1]

def is\_symmetrical(s):

mid = len(s) // 2

if len(s) % 2 == 0:

return s[:mid] == s[mid:]

else:

return s[:mid] == s[mid+1:]

# Example

s = "radar"

print("Palindrome:", is\_palindrome(s))

print("Symmetrical:", is\_symmetrical(s))

```

These code snippets should cover all the tasks you listed! Let me know if you need further explanations or modifications.