**Assignment**

Python coding Questions

List Comprehension :

1. Even Numbers:

Write a Python program that generates a list of even numbers from 1 to 20 using list comprehension.

Example Output: `[2, 4, 6, 8, 10, 12, 14, 16, 18, 20]`

2. Squared Numbers:

Create a Python program that generates a list of the squares of numbers from 1 to 10 using list comprehension.

Example Output: `[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]`

3. Vowels in a String:

Write a Python program that takes a string as input and uses list comprehension to create a list of all the vowels in the string.

Example Input: `"hello, world"`

Example Output: `['e', 'o', 'o']`

4. Prime Numbers:

Create a Python program that generates a list of prime numbers between 1 and 50 using list comprehension.

Example Output: `[2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47]`

5. Matrix Transposition:

Implement a Python program that takes a 2D matrix (list of lists) and uses list comprehensions to compute its transpose.

Example Input:

```python

matrix = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

```

Example Output:

```python

transpose = [[1, 4, 7],

[2, 5, 8],

[3, 6, 9]]