CSE 310 Online A1: Vector Type Detection

Time: 30 minutes

May 2025

1 Objective

In this task, you will create a new `.l` file (**Not in your offline**) to detect nested vector types such as:

- `vector<int>`
- `vector<vector<float>>`
- `vector<vector<vector<double>>>`

The goal is to identify the entire vector declaration (with arbitrary levels of nesting) as a single token and print it in the log file.

2 Requirements

- Detect and match `vector<int/float/double/char>`, including nested vectors.
- Ignore whitespace and allow optional spacing (e.g., `vector < int >` should still be detected).
- Print the full lexeme and log it as:

  `Line No. X: Token <VECTOR_TYPE> Lexeme vector<vector<int>> found`

- You have to report all inputs other than vectors as invalid.

Sample Input

```
vector<int>
vector< vector<float> >
vector< vector< vector<double> > >
```

Expected Log Output

```
Line No. 1: Token <VECTOR_TYPE> Lexeme vector<int> found
Line No. 2: Token <VECTOR_TYPE> Lexeme vector<vector<float>> found
Line No. 3: Token <VECTOR_TYPE> Lexeme vector<vector<vector<double>>> found
```

Sample Input

```
vector<int>
vector< vector float> >
```

Expected Log Output

```
Line No. 1: Token <VECTOR_TYPE> Lexeme vector<int> found
Line No. 2: Error in <VECTOR_TYPE> declaration
```

Sample Input

```
blahblahblah
```

Expected Log Output

```
Line No. 1: Invalid input
```

3 Marks Distribution

- Detecting correct vector pattern - 6
- Detecting incorrect vector pattern - 2
- Detecting invalid input - 2

4 Submission Instructions

- Submit only your `21XXXXX.l` file.