National University

of Computer & Emerging Sciences Peshawar Campus

Name: _____ Section___ Roll No:

Program: CS
Semester: Spring – 2021
Time Allowed: 2 hrs
Course: Programming Fundamentals (CL218)

Examination: Lab Exam
Total Marks: 50
Date: 30th June, 2021
Lab Instructor: Muhammad Hamza

NOTE:
All submissions will be accepted on Google Classroom only. Each Question will have dedicated time and marks. No late submissions will be entertained. **Zero** tolerance in case of plagiarism. Total Questions 5. Only submit **.py** files. Time mentioned for each question includes submission time.

Q3. Tallest Skyscraper (Marks: 20) **Time: 30 min**

A city skyline can be represented as a 2-D list with `1`s representing buildings. In the example below, the height of the tallest building is 4 (second-most right column). (Consider each column a building, 1 represents floor of the building)

```
[     [0, 0, 0, 0, 0, 0],
      [0, 0, 0, 0, 1, 0],
      [0, 0, 1, 0, 1, 0],
      [0, 1, 1, 1, 1, 0],
      [1, 1, 1, 1, 1, 1]     ]
```

Create a function that takes a skyline (2-D list of 0's and 1's) and returns the height of the tallest skyscraper. Your code must be generalized so that it can handle input for n number of floors. Use the given file to extract the information of the buildings. First line in the file contains two numbers, first represents number of stories and second represents number of buildings.

Examples

```
tallest_skyscraper([
  [0, 0, 0, 0],
  [0, 1, 0, 0],
  [0, 1, 1, 0],
  [1, 1, 1, 1]
]) → 3

tallest_skyscraper([
  [0, 1, 0, 0],
  [0, 1, 0, 0],
  [0, 1, 1, 0],
```

```
  [1, 1, 1, 1]
]) → 4

tallest_skyscraper([
  [0, 0, 0, 0],
  [0, 0, 0, 0],
  [1, 1, 1, 0],
  [1, 1, 1, 1]
]) → 2
```