

# CSc 110, Autumn 2017

## Lecture 33: 2D Structures

Adapted from slides by Marty Stepp and Stuart Reges



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# 2d Structure Review

- Given the following structure:

```
grades = {'Ali':[10, 16, 20, 13, 3, 17],  
          'Ken':[9, 16, 8, 19, 20, 20],  
          'Daniel':[8, 10, 20, 20, 20, 20]}
```

- How can I access Ken's grade on project 3?
- How can I find out how many students are in my class / grades?
- How can I find out how many projects a student has done?

# Exercise

- What does the following code produce?

```
def main():  
    grades = {'Ali':[10, 16, 20, 13, 3, 17],  
             'Ken':[9, 16, 8, 19, 20, 20],  
             'Daniel':[8, 10, 20, 20, 20, 20]}  
    print(mystery(grades, 2))
```

```
def mystery(grades, i):  
    total = 0  
    for student in grades:  
        total += grades[student][i]  
    return total / len(grades)
```

# Exercise

- Write a function to calculate the average grade of all students on all assignments.
  - How can we get access to each grade?
  - How can we know how many grades we need to sum?

# Exercise

- Write a function that returns a list where each element in the list is the average score for that particular assignment number.

# Exercise

- Write a function that returns the project number that the student scored highest on.
  - Use the list `sort` function