Question 69000:

Write a program that uses the keys(), values(), and/or items() dict methods to find statistics about the student_grades dictionary. Find the following:

*   Print the name and grade percentage of the student with the highest total of points
*   Find the average score of each assignment.
*   Find and apply a curve to each student's total score, such that the best student has 100% of the total points.

```
student_grades = {
'Andrew': [56, 79, 90, 22, 50],
'Colin': [88, 62, 68, 75, 78],
'Alan': [95, 88, 92, 85, 85],
'Mary': [76, 88, 85, 82, 90],
'Tricia': [99, 92, 95, 89, 99]
}
```

Answer:

```python
# py3

def main():
    student_grades = {
    'Andrew': [56, 79, 90, 22, 50],
    'Colin': [88, 62, 68, 75, 78],
    'Alan': [95, 88, 92, 85, 85],
    'Mary': [76, 88, 85, 82, 90],
    'Tricia': [99, 92, 95, 89, 99]
    }

    print('Ans1')
    # Print the name and grade percentage of the student
    # with the highest total of points
    highest_name = next(iter(student_grades))
    highest_total_of_points = sum(student_grades[highest_name])
    for name, lst in student_grades.items():
        total_of_points = sum(lst)
        if total_of_points > highest_total_of_points:
            highest_name = name
            highest_total_of_points = total_of_points
    print('{}, {:.2f}'.format(highest_name, highest_total_of_points / 500))

    print('Ans2')
    # Find the average score of each assignment
    average_scores = {}
    assignments = ('A1', 'A2', 'A3', 'A4', 'A5')
    #scores = [0 for i in range(5)]
    scores = [0] * 5
    for name in student_grades.keys():
```

```python
        lst = student_grades[name]
        for i in range(5):
            scores[i] += 0.2 * lst[i]
    for i in range(len(assignments)):
        average_scores[assignments[i]] = scores[i]
    for ass, scr in sorted(average_scores.items()):
        print('{}, {:.2f}'.format(ass, scr))

    print('Ans3')
    # Find and apply a curve to each student's total score,
    # such that the best student has 100% of the total points.
    new_student_grades = student_grades
    highest_grades = student_grades[highest_name]
    grades = []
    for name, lst in student_grades.items():
        new_lst = []
        for i in range(len(lst)):
            new_lst.append(lst[i] * (1 / highest_grades[i] * 100))
        new_student_grades[name] = new_lst
    for name, lst in student_grades.items():
        print('{:8s}: '.format(name) + ', '.join(['{:8.2f}'.format(j) for j in lst]))


main()


# Ans1
# Tricia, 0.95
# Ans2
# A1, 82.80
# A2, 81.80
# A3, 86.00
# A4, 70.60
# A5, 80.40
# Ans3
# Colin   :    88.89,    67.39,    71.58,    84.27,    78.79
# Tricia  :   100.00,   100.00,   100.00,   100.00,   100.00
# Andrew  :    56.57,    85.87,    94.74,    24.72,    50.51
# Mary    :    76.77,    95.65,    89.47,    92.13,    90.91
# Alan    :    95.96,    95.65,    96.84,    95.51,    85.86
```