

```
#1.
student_data = dict()
for i in range(5):
    name = input("Enter a name: ")
    courses = input("Enter a list of space separated courses: ").split()
    student_data[name] = courses
    course_query = input("Enter a course: ")
students = [student for student in student_data if course_query in st
print("The following students took", course_query, ":")
print(*students, sep = '\n')
```

```
➞ Enter a name: Hello K
Enter a list of space separated courses: math, bio
Enter a name: Jay T
Enter a list of space separated courses: cs, bio
Enter a name: Spring K
Enter a list of space separated courses: math, cs, bio
Enter a name: May K
Enter a list of space separated courses: cs, math
Enter a name: Anna K
Enter a list of space separated courses: math
Enter a course: math
The following students took math :
May K
Anna K
```

```
#2 - (a)
team_stats = {}
while True:
    team_name = input("Enter a team name (or 'quit' to stop): ")
    if team_name.lower() == 'quit':
        break
    wins = int(input("Enter the number of games won: "))
    losses = int(input("Enter the number of games lost: "))
    team_stats[team_name] = [wins, losses]
search_team = input("Enter a team name to get the winning percentage: ")
if search_team in team_stats:
    wins, losses = team_stats[search_team]
    winning_percentage = (wins / (wins + losses)) * 100
    print(f"{search_team} has a winning percentage of {winning_percenta}")
else:
    print(f"Team '{search_team}' not found.")

win_counts = [wins for wins, _ in team_stats.values()]
print("List of wins for each team:", win_counts)

winning_teams = [team for team, (wins, losses) in team_stats.items() if wins > losses]
print("Teams with winning records:", winning_teams)
```

Enter a team name (or 'quit' to stop): a
Enter the number of games won: 3
Enter the number of games lost: 4
Enter a team name (or 'quit' to stop): b
Enter the number of games won: 1
Enter the number of games lost: 2
Enter a team name (or 'quit' to stop): c
Enter the number of games won: 5
Enter the number of games lost: 2
Enter a team name (or 'quit' to stop): quit
Enter a team name to get the winning percentage: b
b has a winning percentage of 33.33%
List of wins for each team: [3, 1, 5]
Teams with winning records: ['c']

#3.

```
nums = [
    [1,3,4,5,2],
    [3,6,5,4,1],
    [7,8,5,1,4],
    [9,7,8,6,5],
    [2,3,1,3,2]
]
dict = {}
for i in range(5):
    for j in range(5):
        if(nums[i][j] in dict.keys()):
            dict[nums[i][j]] += 1
        else:
            dict[nums[i][j]] = 1
for i in dict.keys():
    print(i,dict[i])
most_common = []
for i in range(3):
    mxFreq = 0
    element = 0
    for i in dict.keys():
        if dict[i] > mxFreq and i not in most_common:
            element = i
            mxFreq = dict[i]
    most_common.append(element)
print("Three most common numbers in the list:", most_common)
```

```
1 4
3 4
4 3
5 4
2 3
6 2
7 2
8 2
9 1
```

```
Three most common numbers in the list: [1, 3, 5]
```

#4.

```
import random
```

```
def quiz_game(questions):
    question_list = list(questions.keys())
    random.shuffle(question_list)
    for question in question_list:
        answer = input(f"Q: {question}\nYour answer: ").strip().lower()
        if answer == questions[question]:
            print("Correct!")
        else:
            print("Incorrect. The correct answer is:", questions[question])

def main():
    quiz_questions = {
        "What is 34+67": "101",
        "What is the square of 4?": "16",
        "What is 45*3?": "135",
        "How many planets are there in the solar system?": "8",
        "What is 12*3?": "36"
    }
    print("Welcome to the Simple Quiz Game!")
    print("You'll be asked a series of random questions. Let's begin!\n")
    quiz_game(quiz_questions)

if __name__ == "__main__":
    main()
```

Welcome to the Simple Quiz Game!
You'll be asked a series of random questions. Let's begin!

Q: What is 34+67
Your answer: 101
Correct!
Q: What is 12*3?
Your answer: 36
Correct!
Q: How many planets are there in the solar system?
Your answer: 8
Correct!
Q: What is 45*3?
Your answer: 135
Correct!
Q: What is the square of 4?
Your answer: 16
Correct!