Midterm Lab Exam

Question #1

```
Code:
#Student data in the form of a List of Dictionaries. We have 5
entries of student data.
student_data = [{
    'student_id':4,
    'course_type':'core', #or 'elective'
    'minimum_credits_required':10,
    'total_credits_taken':8
},
{
    'student_id':21,
    'course_type':'core', #or 'elective'
    'minimum_credits_required':10,
    'total_credits_taken':12
},
{
    'student_id':37,
    'course_type':'elective', #or 'elective'
    'minimum_credits_required':10,
    'total_credits_taken':8
},
{
    'student_id':44,
    'course_type':'core', #or 'elective'
    'minimum_credits_required':15,
    'total_credits_taken':8
},
{
    'student_id':53,
    'course_type':'elective', #or 'elective'
    'minimum_credits_required':18,
    'total_credits_taken':18
}]
#Each course is assumed to be of 2 Credit Hours, so courses_taken =
total_credit_taken/2;

#The function defined below will take the dictionary as an argument
and return the appropriate fee or discount for the student.
def calculate_fee_or_discount(student_data):
        #Initializing the fee variable
        fee=0
```

```python
        courses_taken = student_data['total_credits_taken']/2
        courses_required = student_data['minimum_credits_required']/2
        if courses_required > courses_taken:  # If courses taken were
less than required by end of semester
            if student_data['course_type'] == 'core': # If course
type is 'core'
                fee = 50
                print(f"\nStudent with Registration
No.{student_data['student_id']} should pay {fee} as a fee.\n")
            elif student_data['course_type'] == 'elective': #If
course type is 'elective'
                fee = 30
                print(f"\nStudent with Registration
No.{student_data['student_id']} should pay {fee} as a fee.\n")
        elif courses_taken >= courses_required: #If courses taken
were more than required by end of semester
            if student_data['course_type'] == 'core': # If course
type is 'core'
                if courses_taken >= 5:
                    print(f"\nStudent with Registration No.
{student_data['student_id']} gets 2% discount on the total fee.\n")
            elif student_data['course_type'] == 'elective': # If
course type is 'elective'
                if courses_taken >= 3:
                    print(f"\nStudent with Registration No.
{student_data['student_id']} gets 3% discount on the total fee.\n")
        return

#Input the index to check the fee of the student on that index.
while(True):
    choice = input("Do you want to check fee?")
    if choice == 'yes' or choice =='y':
        index = int(input("Enter the index to check the fee:"))
        if index <=4:
            calculate_fee_or_discount(student_data[index])
        else:
            print("Index too high, choose from 0-4")
    else:
        print("Bye!")
        break
```

Output:

```
                calculate_fee_or_discount(student_data[index])
        else:
            print("Index too high, choose from 0-4")
    else:
        print("Bye!")
        break

Do you want to check fee? yes
Enter the index to check the fee: 0

Student with Registration No.4 should pay 50 as a fee.

Do you want to check fee? y
Enter the index to check the fee: 1

Student with Registration No. 21 gets 2% discount on the total fee.

Do you want to check fee? y
Enter the index to check the fee: 2

Student with Registration No.37 should pay 30 as a fee.

Do you want to check fee? y
Enter the index to check the fee: 3

Student with Registration No.44 should pay 50 as a fee.

Do you want to check fee? y
Enter the index to check the fee: 4

Student with Registration No. 53 gets 3% discount on the total fee.

Do you want to check fee? y
Enter the index to check the fee: 5
Index too high, choose from 0-4
Do you want to check fee? no
Bye!
```

```python
29          'minimum_credits_required':18,
30          'total_credits_taken':18
31  }]
32  #Each course is assumed to be of 2 Credit Hours, so courses_taken = total_credit_taken/2;
33
34  #The function defined below will take the dictionary as an argument and return the appropriate fee or discount for the
35  def calculate_fee_or_discount(student_data):
36          #Initializing the fee variable
37          fee=0
38          courses_taken = student_data['total_credits_taken']/2
39          courses_required = student_data['minimum_credits_required']/2
40          if courses_required > courses_taken:  # If courses taken were less than required by end of semester
41              if student_data['course_type'] == 'core': # If course type is 'core'
42                  fee = 50
43                  print(f"\nStudent with Registration No.{student_data['student_id']} should pay {fee} as a fee.\n")
44              elif student_data['course_type'] == 'elective': #If course type is 'elective'
45                  fee = 30
46                  print(f"\nStudent with Registration No.{student_data['student_id']} should pay {fee} as a fee.\n")
47          elif courses_taken >= courses_required: #If courses taken were more than required by end of semester
48              if student_data['course_type'] == 'core': # If course type is 'core'
49                  if courses_taken > 5:
50                      print(f"\nStudent with Registration No. {student_data['student_id']} gets 2% discount on the total
51              elif student_data['course_type'] == 'elective': # If course type is 'elective'
52                  if courses_taken >= 3:
53                      print(f"\nStudent with Registration No. {student_data['student_id']} gets 3% discount on the total
54          return

55
56  #Input the index to check the fee of the student on that index.
57  while(True):
58      choice = input("Do you want to check fee?")
59      if choice == 'yes' or choice =='y':
60          index = int(input("Enter the index to check the fee:"))
61          if index <=4:
62              calculate_fee_or_discount(student_data[index])
63          else:
64              print("Index too high, choose from 0-4")
```

```
PS C:\Users\hp\Desktop\FA20-BCE-021>
thon -u "c:\Users\hp\Desktop\FA20-BCE-
21\FA20-BCE-021.py"
Do you want to check fee?yes
Enter the index to check the fee:0

Student with Registration No.4 should
ay 50 as a fee.

Do you want to check fee?y
Enter the index to check the fee:1

Student with Registration No. 21 gets
% discount on the total fee.

Do you want to check fee?y
Enter the index to check the fee:2

Student with Registration No.37 shoul
pay 30 as a fee.

Do you want to check fee?y
Enter the index to check the fee:3

Student with Registration No.44 shoul
pay 50 as a fee.

Do you want to check fee?y
Enter the index to check the fee:4

Student with Registration No. 53 gets
% discount on the total fee.

Do you want to check fee?y
Enter the index to check the fee:5
Index too high, choose from 0-4
Do you want to check fee?no
Bye!
PS C:\Users\hp\Desktop\FA20-BCE-021>
```