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import re

# Part 1
class Person:
    def __init__(self, name, age, email):
        self.__name = name
        self.__age = age
        self.__email = email

    def setEmail(self, email):
        self.__email = email

    def getEmail(self):
        return self.__email

    def display_info(self):
        print("Name:", self.__name)
        print("Age:", self.__age)
        print("Email:", self.__email)

    # Addition operator oveloading (Part 5)
    def __add__(self, other):
        return self.__age + other.__age

# Part 2
class Student(Person):
    def __init__(self, name, age, email, student_id, major):
        Person.__init__(self, name, age, email)
        self.student_id = student_id
        self.major = major

    # Part 7
    def setEmail(self, email):
        if '@' in email:
            flag1 = re.match(r'.*@', email)
            flag2 = re.match(r'@.*', email)
            if flag1 and flag2:
                self.__email = email
            else:
                print("Invalid email address!")
        else:
            print("Invalid email address!")

    def display_info(self):
        Person.display_info(self)
        print("Student ID:", self.student_id)
        print("Major:", self.major)

class Employee(Person):
    'Diaa Badaha - 1210478' # Part 4: docString
    def __init__(self, name, age, email, employee_id, position):
        Person.__init__(self, name, age, email)
        self.employee_id = employee_id
        self.position = position

    def display_info(self):
        Person.display_info(self)
        print("Employee ID:", self.employee_id)
        print("Position:", self.position)

# Part 3: instantiate and test
print("Student Info:")
s = Student('Diaa', 21, '123@gmail.com', 1210478, 'CSE')
s.display_info()

print("\nEmployee Info:")
e = Employee('Ahmad', 30, 'Ahmad@gmail.com', 1210241, 'SE')
e.display_info()
```

```
# Part 4 testing
# help(Employee) # In order to show docstring


# Part 5 testing
print("\nAddition of two students' ages:")
s1 = Student('Khaled', 20, 'aaaaa@gmail.com', 1210470, 'CSE')
s2 = Student('Waleed', 22, 'bbbbb@gmail.com', 1210479, 'CSE')
print(s1 + s2)

# Part 6: dividistion function
def divide_numbers(a, b):
    try:
        return a / b
    except ZeroDivisionError:
        return "You can't divide by zero"
    except TypeError:
        return "A or B or Both are not a number!"

# Part 6 testing
print("\nDivision of two numbers:")
print(divide_numbers(10, 2))
print(divide_numbers(10, 0))
print(divide_numbers('A', 2))

# Part 7 testing
print("\nSetting Emails:")
s1.setEmail('t@gmail.com')
s2.setEmail('test@om')
s2.setEmail('test.com')
```