Trabalho de Estrutura de Dados I

Nome: Lucas Sousa dos Reis
Matrícula: 53405345

Professor: Enoque Alves

auxx.py

```
string = input()

lst = []

k = 1

for i in string:
    aux = []
    if int(i) != int(i) + 1:
        aux.append(k)
        aux.append(i)
        lst.append(aux)
        k = 1
    else:
        k += 1

print(lst)
```

find-a-string.py

```
def count_substring(string, sub_string):

    count = 0

    for i in range(len(string) + 1):
        if string[i - len(sub_string):i].count(sub_string):
            count += 1

    return count

if __name__ == '__main__':
    string = input().strip()
    sub_string = input().strip()

    count = count_substring(string, sub_string)
    print(count)
```

list-comprehensions.py

```
def list_create_all(x, y, z):
    alllist = []
    for i in range(x + 1):
        for j in range(y + 1):
            for k in range(z + 1):
                arr = []
                arr.append(i)
                arr.append(j)
                arr.append(k)
                alllist.append(arr)

    return alllist

def list_create_blacklist(alllist, n):
    blacklist = []
    for i in range(len(alllist)):
        if alllist[i][0] + alllist[i][1] + alllist[i][2] == n:
            blacklist.append(alllist[i])

    return blacklist

x = int(input())
y = int(input())
z = int(input())
n = int(input())

alllist = list_create_all(x, y, z)
blacklist = list_create_blacklist(alllist, n)

print([i for i in alllist if i not in blacklist])
```

lists.py

```
def insert(lst, command):
    value = int(command[1])
    index = int(command[2])

    lst.insert(value, index)

def remove(lst, command):
    index = int(command[1])

    lst.remove(index)

def append(lst, command):
    value = int(command[1])

    lst.append(value)

def sort(lst):
    lst.sort()

def pop(lst):
    lst.pop()

def reverse(lst):
    lst.reverse()

def print_list(lst):
    print(lst)

n = int(input())
lst = []

for i in range(n):
    command = input().split()

    if command[0] == 'append':
        append(lst, command)

    if command[0] == 'insert':
        insert(lst, command)

    if command[0] == 'remove':
        remove(lst, command)

    if command[0] == 'print':
        print_list(lst)

    if command[0] == 'sort':
        sort(lst)

    if command[0] == 'pop':
```

```
        pop(lst)

    if command[0] == 'reverse':
        reverse(lst)
```

loops.py

```
n = int(input())

list = []

for i in range(n):
    list.append(i)

for i in list:
    print(i * i)
```

mutations.py

```
def mutate_string(string, position, character):
    s_new = ''
    for i in range(len(string)):
        if i == position:
            s_new = s_new + character
        else: s_new = s_new + string[i]
    return s_new

if __name__ == '__main__':
    s = input()
    i, c = input().split()
    s_new = mutate_string(s, int(i), c)
    print(s_new)
```

nested-lists.py

```
def create_students_list(n):
    students = []
    for i in range(n):
        aux = []
        name = str(input())
        grade = float(input())

        aux.append(grade)
        aux.append(name)

        students.append(aux)

    return students

def create_lowest_grade_list(students):
    x = sorted(students)
    slg = []

    try:
        for i in range(len(x)):
            if x[i][0] != x[i + 1][0]:
                target = x[i + 1]
                break
    except: pass

    for i in range(len(x)):
       if target[0] == x[i][0]:
           slg.append(x[i])

    return slg

n = int(input())

students = create_students_list(n)
slg = create_lowest_grade_list(students)

for i in range(len(slg)):
    print(slg[i][1])
```

python-division.py

```
def calc(a, b):
    print(a // b)
    print(a / b)

a = int(input())
b = int(input())

calc(a, b)
```

python-if-else.py

```
command = int(input())

if command % 2 != 0:
    print('Weird')

elif command <= 5 and command >= 2:
    print('Not Weird')

elif command >= 6 and command <= 20:
    print('Weird')

else:
    print('Not Weird')
```

say-hello-world-with-python.py

```
print('Hello, World!')
```

swap-case.py

```
def swap_case(s):
    result = ''
    for i in range(len(s)):
        if s[i].isupper():
            result = result + s[i].lower()
        else: result = result + s[i].upper()
    return result

if __name__ == '__main__':
    s = input()
    result = swap_case(s)
    print(result)
```

arithmetic-operators.py

```
def soma(a, b):
    print(a + b)

def sub(a, b):
    print(a - b)

def multi(a, b):
    print(a * b)

a = int(input())
b = int(input())

soma(a, b)
sub(a, b)
multi(a, b)
```

validating-email-addresses-with-a-filter.py

```
def email_parts(email):
    username = ''
    website = ''
    for i in email:
        if i == '@':
            break
        username = username + i

    aux = email[len(username) + 1:]

    for i in aux:
        if i == '.':
            break
        website = website + i

    extension = email[len(username) + len(website) + 2:]

    return username, website, extension

def fun(s):
    username, website, extension = email_parts(s)
    usernameI = ['q', 'w', 'e', 'r', 't', 'y', 'u', 'i', 'o', 'p', 'l',
'k', 'j', 'h', 'g', 'f', 'd', 's', 'a',
                 'z', 'x', 'c', 'v', 'b', 'n', 'm', '1', '2', '3', '4',
'5', '6', '7', '8', '9', '0', '-', '_']
    websiteI = ['q', 'w', 'e', 'r', 't', 'y', 'u', 'i', 'o', 'p', 'l',
'k', 'j', 'h', 'g', 'f', 'd', 's',
                  'a', 'z', 'x', 'c', 'v', 'b', 'n', 'm', '1', '2', '3',
'4', '5', '6', '7', '8', '9', '0']
    extensionI = ['q', 'w', 'e', 'r', 't', 'y', 'u', 'i', 'o', 'p', 'l',
'k', 'j', 'h', 'g', 'f', 'd', 's',
                  'a', 'z', 'x', 'c', 'v', 'b', 'n', 'm']

    if len(username) == 0:
        username = False
    else:
        for i in username.lower():
            if i in usernameI:
                username = True
            else:
                username = False
                break

    for i in website.lower():
        if i in websiteI:
            website = True
        else:
            website = False
            break
```

```
    if len(extension) == 0 or len(extension) > 3:
        extension = False
    else:
        for i in extension.lower():
            if i in extensionI:
                extension = True
            else:
                extension = False
                break

    if username == False or website == False or extension == False:
        s = False
    else: s = True

    return s

def filter_mail(emails):
    return list(filter(fun, emails))

if __name__ == '__main__':
    n = int(input())
    emails = []
    for _ in range(n):
        emails.append(input())

filtered_emails = filter_mail(emails)
filtered_emails.sort()
print(filtered_emails)
```

whats-your-name.py

```
def print_full_name(first, last):
    print(f'Hello {first} {last}! You just delved into python.')

if __name__ == '__main__':
    first_name = input()
    last_name = input()
    print_full_name(first_name, last_name)
```

write-a-function.py

```
def case_one(year):
    if year % 400 == 0:
        leap = True
    else: leap = False

    return leap

def case_two(year):
    if year % 4 == 0:
        leap = True
    else: leap = False

    return leap

def is_leap(year):
    x = str(year)

    if x[2:] == '00':
        leap = case_one(year)
    else: leap = case_two(year)

    return leap

year = int(input())
print(is_leap(year))
```