

МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ  
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Факультет “Информатика и системы управления”  
Кафедра “Системы обработки информации и управления”



Дисциплина “Парадигмы и конструкции языков программирования”

Отчет по рубежному контролю №1

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## Код(main.py)

```
class Programming_library:
    def __init__(self, ID: int, name: str, programming_language_ID: int,
upload_count: int):
        self.ID = ID
        self.name = name
        self.programming_language_ID = programming_language_ID
        self.upload_count = upload_count

class Programming_language:
    def __init__(self: int, ID, name: str, last_version: str):
        self.ID = ID
        self.name = name
        self.last_version = last_version

class Programming_library_of_language:
    def __init__(self, Programming_language_ID, Programming_library_ID):
        self.Programming_language_ID = Programming_language_ID
        self.Programming_library_ID = Programming_library_ID

def Task1(list_prog_lib: list, list_prog_lan: list):
    for i in list_prog_lib:
        if i.name[0] == "A" or i.name[0] == "A":
            print(i.name, [j.name for j in list_prog_lan if j.ID ==
i.programming_language_ID][0])

def Task2(list_prog_lib: list, list_prog_lan: list):
    for i in sorted([[min([j.upload_count for j in list_prog_lib if
j.programming_language_ID == i.ID]), i.name] for i in list_prog_lan]):
        print(i[0], i[1])

def Task3(list_library_of_language: list, list_prog_lib: list, list_prog_lan:
list):
    for i in sorted(list_library_of_language, key=lambda x: [[j.name for j in
list_prog_lib if j.ID == x.Programming_library_ID], [j.name for j in
list_prog_lan if j.ID == x.Programming_language_ID]]):
        print([j.name for j in list_prog_lib if j.ID ==
i.Programming_library_ID][0], [j.name for j in list_prog_lan if j.ID ==
i.Programming_language_ID][0])

list_prog_lib = [
    Programming_library(0, 'Pandas', 0, 10000),
    Programming_library(1, 'Mathlib', 2, 250000),
    Programming_library(2, 'QT5', 0, 32000),
    Programming_library(3, 'sys', 1, 123000),
    Programming_library(4, 'os', 1, 322200),
    Programming_library(5, 'iostream', 2, 3000),
    Programming_library(6, 'A_something', 3, 200),
    Programming_library(7, 'Json', 3, 990000),
    Programming_library(8, 'Aio', 1, 20),
]

list_prog_lan = [
    Programming_language(0, 'Python', '1.231'),
    Programming_language(1, 'JSCode', '2.23'),
    Programming_language(2, 'C++', '3.2'),
    Programming_language(3, 'C#', '1.1'),
]

list_prog_lib_lan = [
    Programming_library_of_language(0, 1),
```

```

        Programming_library_of_language(0, 2),
        Programming_library_of_language(0, 4),
        Programming_library_of_language(0, 7),
        Programming_library_of_language(1, 2),
        Programming_library_of_language(1, 4),
        Programming_library_of_language(1, 3),
        Programming_library_of_language(1, 0),
        Programming_library_of_language(2, 1),
        Programming_library_of_language(2, 5),
        Programming_library_of_language(2, 6),
        Programming_library_of_language(2, 7),
        Programming_library_of_language(3, 0),
        Programming_library_of_language(3, 1),
        Programming_library_of_language(3, 2),
        Programming_library_of_language(3, 3),
        Programming_library_of_language(3, 6),
    ]

print("Task1")
Task1(list_prog_lib, list_prog_lang)
print()

print("Task2")
Task2(list_prog_lib, list_prog_lang)
print()

print("Task3")
Task3(list_prog_lib_lang, list_prog_lib, list_prog_lang)
print()

```

Работа кода:

```

C:\Users\user\Downloads\BMSTU_Labs\venv\Scripts\python.exe C:\Users\user\Downloads\BMSTU_Labs\RK1\main.py
Task1
Библиотеки начинающиеся с буквы A (англ\русской)
A_something C#
Aio JSCode

Task2
Минимальное количество скачиваний библиотек
20 JSCode
200 C#
3000 C++
10000 Python

Task3
Все языки программирования и их библиотеки (отсортированные по названию библиотеки и языка)
A_something C#
A_something C++
Json C++
Json Python
MathLib C#
MathLib C++
MathLib Python
Pandas C#
Pandas JSCode
QT5 C#
QT5 JSCode
QT5 Python
iostream C++
os JSCode
os Python
sys C#
sys JSCode

```