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Рубежный контроль №1 по дисциплине "Базовые компоненты интернет-технологий"

Текст программы

Файл programm.py:

```python
class Programm:
    def __init__(self, id, name, size_MB, computer_id):
        self.id = id
        self.name = name
        self.size_MB = size_MB
        self.computer_id = computer_id

```

Файл computer.py:

```python
class Computer:
    def __init__(self, id, name):
        self.id = id
        self.name = name
```

Файл programmComputer.py:

```python
class ProgrammComputer:
    def __init__(self, computer_id, programm_id):
        self.computer_id = computer_id
        self.programm_id = programm_id
```

Файл main.py:

```python
1   from classes.programm import Programm
2   from classes.computer import Computer
3   from classes.programm_computer import ProgrammComputer
4
5   from operator import itemgetter
6
7   programms = [
8       Programm(1, 'Yandex Browser', 167, 1),
9       Programm(2, 'Telegram', 366, 1),
10      Programm(3, 'Word', 372, 1),
11      Programm(4, 'Firefox Browser', 249.5, 2),
12      Programm(5, 'VS Code', 238.8, 2),
13      Programm(6, 'IDEA Community', 1234, 2),
14      Programm(7, 'Drawio', 234.7, 3),
15      Programm(8, 'OneNote', 344, 4),
16  ]
17
18  # Сотрудники
19  computers = [
20      Computer(1, 'PC1'),
21      Computer(2, 'PC2'),
22      Computer(3, 'PC3'),
23      Computer(4, 'PC4'),
24  ]
25
26  programms_computers = [
27      ProgrammComputer(1,1),
28      ProgrammComputer(1,2),
29      ProgrammComputer(1,3),
30      ProgrammComputer(2,4),
31      ProgrammComputer(2,5),
32      ProgrammComputer(2,6),
33      ProgrammComputer(3,7),
34      ProgrammComputer(4,8),
35      ProgrammComputer(1,7),
36      ProgrammComputer(3,6),
37      ProgrammComputer(3,2),
38      ProgrammComputer(4,5),
39      ProgrammComputer(5,6),
40  ]
```

```python
41
42  def main():
43
44      # Соединение данных один-ко-многим
45      one_to_many = [(p.name, p.size_MB, c.name)
46          for c in computers
47          for p in programms
48          if p.computer_id==c.id]
49
50      # Соединение данных многие-ко-многим
51      many_to_many_temp = [(c.id, c.name, pc.programm_id)
52          for c in computers
53          for pc in programms_computers
54          if c.id==pc.computer_id]
55
56      many_to_many = [(p.name, p.size_MB, c_name)
57          for p in programms
58          for c_id, c_name, p_id in many_to_many_temp
59          if p.id==p_id]
60
61      print('Задание 1')
62      task_1 = sorted(one_to_many, key=itemgetter(0))
63      for el in task_1:
64          print(el)
65      print('Задание 2')
66      task_2 = []
67      for i in range(len(computers)):
68          cnt_programms = 0
69          for j in one_to_many:
70              if(j[2] == computers[i].name):
71                  cnt_programms += 1
72          task_2.append((computers[i].name, cnt_programms))
73      task_2 = sorted(task_2, key=itemgetter(1), reverse=Tru
74      for el in task_2:
75          print(el)
76      print('Задание 3')
77      task_3 = []
78      for el in many_to_many:
79          if(el[1] > 300):
80              task_3.append(el)
81      for el in task_3:
82          print(el)
83
84
85  if __name__ == '__main__':
86      main()
```

Результаты работы программы

```
khristina@khristina-HP-Pavilion-Laptop-14-dv0xxx:~/repos/BKIT2022$
Задание 1
('Drawio', 234.7, 'PC3')
('Firefox Browser', 249.5, 'PC2')
('IDEA Community', 1234, 'PC2')
('OneNote', 344, 'PC4')
('Telegram', 366, 'PC1')
('VS Code', 238.8, 'PC2')
('Word', 372, 'PC1')
('Yandex Browser', 167, 'PC1')
Задание 2
('PC1', 3)
('PC2', 3)
('PC3', 1)
('PC4', 1)
Задание 3
('Telegram', 366, 'PC1')
('Telegram', 366, 'PC3')
('Word', 372, 'PC1')
('IDEA Community', 1234, 'PC2')
('IDEA Community', 1234, 'PC3')
('OneNote', 344, 'PC4')
```