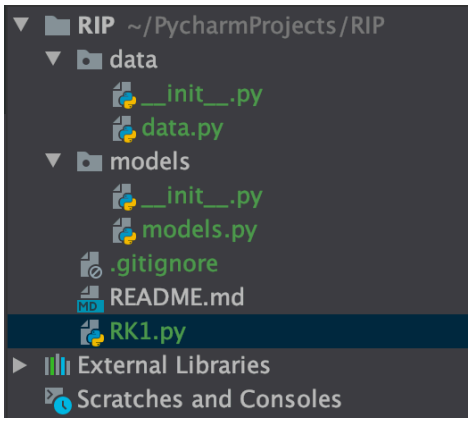
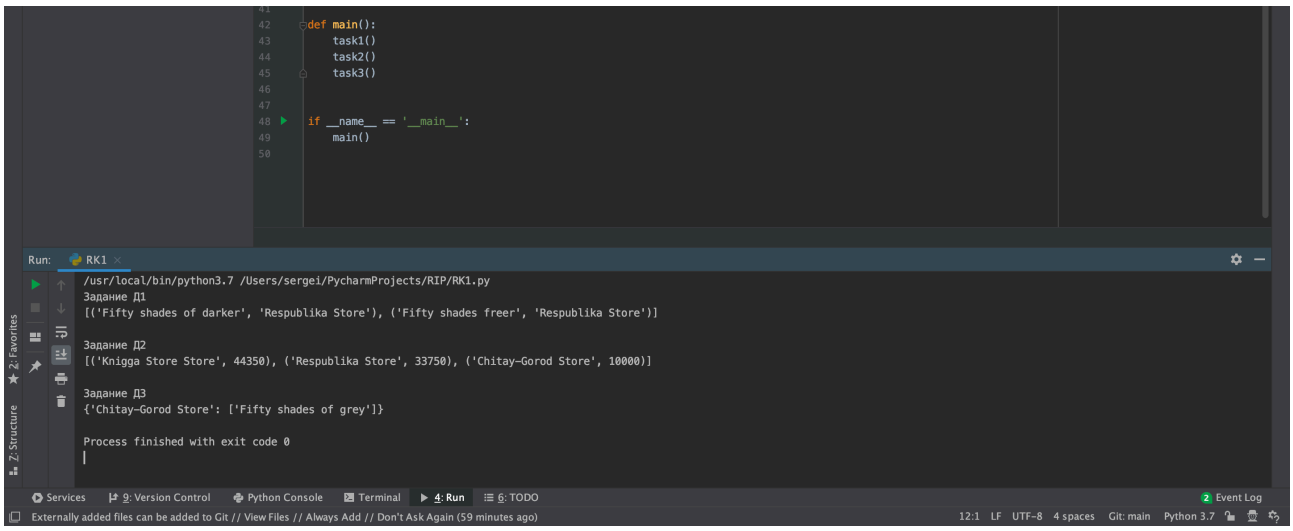



```python
from models.models import Book, BookInBStore, BookStore

# Магазины
stores = [...]

# Книги
books = [...]

books_stores = [...]

# соединение данных один-ко-многим
one_to_many = [(c.title, c.pages, o.name)
               for o in stores
               for c in books
               if c.book_store_id == o.id]

# соединение данных многие-ко-многим
many_to_many = [(c.title, c.pages, store_name)
                for store_name, store_id, book_id in [(o.name, co.store_id, co.book_id)
                                                      for o in stores
                                                      for co in books_stores
                                                      if o.id == co.store_id]
                for c in books if c.id == book_id]
```

```python
class Book:
    # книга
    def __init__(self, id, title, pages, book_store_id):
        self.id = id
        self.title = title
        self.pages = pages
        self.book_store_id = book_store_id


class BookStore:
    # магазин
    def __init__(self, id, name):
        self.id = id
        self.name = name


class BookInBStore:
    # книги магазина для реализации связи
    # многие-ко-многим
    def __init__(self, store_id, book_id):
        self.store_id = store_id
        self.book_id = book_id
```

```python
# вариант запроса Д
# вариант предметной области 16 : книга - книжный магазин
from operator import itemgetter
from data.data import stores, one_to_many, many_to_many


def task1():
    print('Задание Д1')
    res1 = []
    for i in one_to_many:
        if i[0][-2:] == "er":
            res1.append(i[0:3:2])
    print(res1)


def task2():
    print('\nЗадание Д2')
    res2_unsorted = []
    for o in stores:
        o_books = list(filter(lambda i: i[2] == o.name, one_to_many))
        if len(o_books) > 0:
            o_pages = [pages for _, pages, _ in o_books]
            o_pages_sum = sum(o_pages)
            o_pages_count = len(o_pages)
            o_pages_average = o_pages_sum / o_pages_count
            res2_unsorted.append((o.name, int(o_pages_average)))
    res2 = sorted(res2_unsorted, key=itemgetter(1), reverse=True)
    print(res2)


def task3():
    print('\nЗадание Д3')
    res3 = {}
    for o in stores:
        if o.name[0] == "C":
            o_books = list(filter(lambda i: i[2] == o.name, many_to_many))
            o_books_titles = [x for x, _, _ in o_books]
            res3[o.name] = o_books_titles
    print(res3)
```



Задание Д1
[('Fifty shades of darker', 'Respublika Store'), ('Fifty shades freer', 'Respublika Store')]

Задание Д2
[('Knigga Store Store', 44350), ('Respublika Store', 33750), ('Chitay-Gorod Store', 10000)]

Задание Д3
{'Chitay-Gorod Store': ['Fifty shades of grey']}