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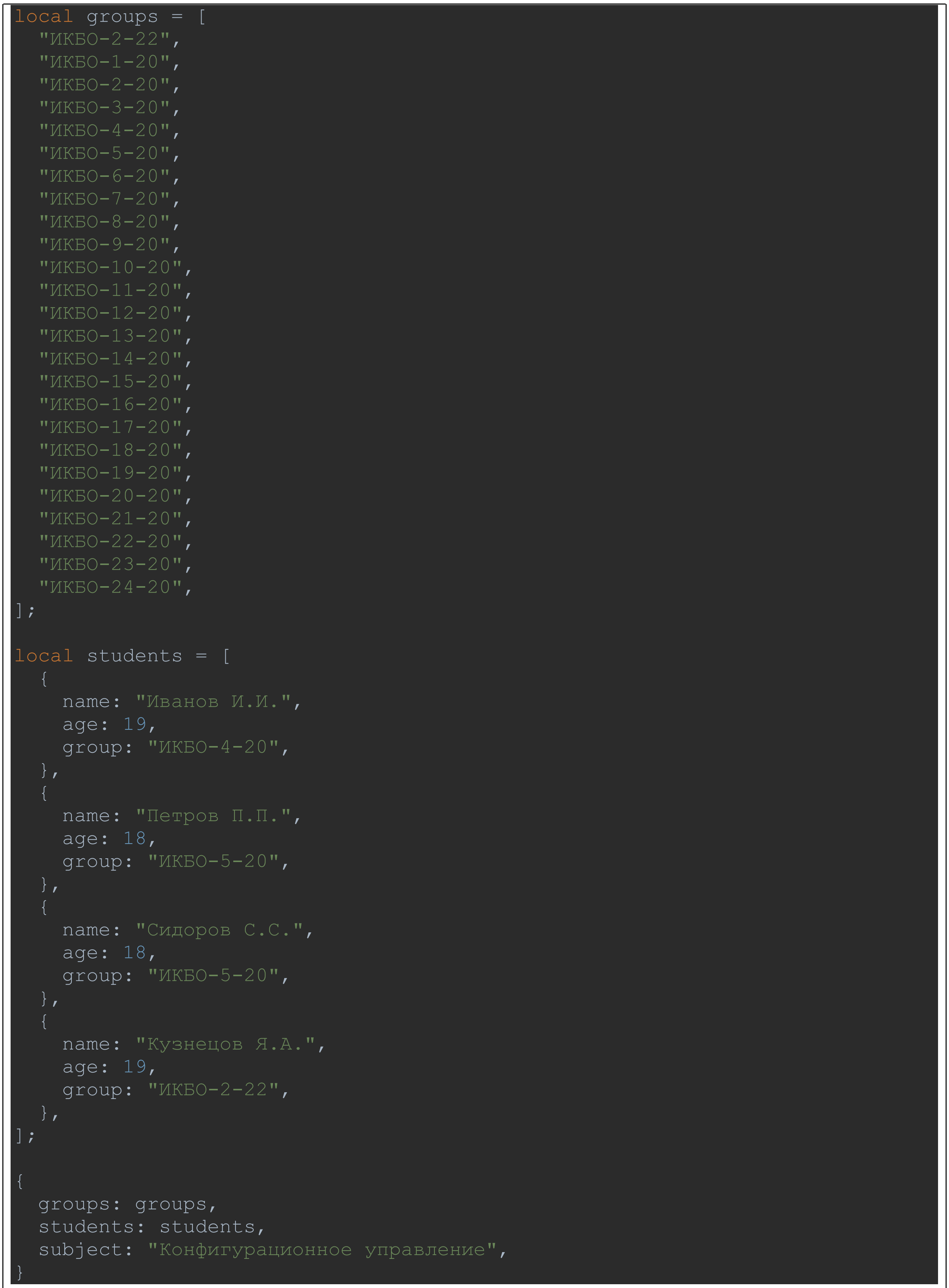
Практическая работа № 3

Задача № 1



```
local groups = [
  "ИКБО-2-22",
  "ИКБО-1-20",
  "ИКБО-2-20",
  "ИКБО-3-20",
  "ИКБО-4-20",
  "ИКБО-5-20",
  "ИКБО-6-20",
  "ИКБО-7-20",
  "ИКБО-8-20",
  "ИКБО-9-20",
  "ИКБО-10-20",
  "ИКБО-11-20",
  "ИКБО-12-20",
  "ИКБО-13-20",
  "ИКБО-14-20",
  "ИКБО-15-20",
  "ИКБО-16-20",
  "ИКБО-17-20",
  "ИКБО-18-20",
  "ИКБО-19-20",
  "ИКБО-20-20",
  "ИКБО-21-20",
  "ИКБО-22-20",
  "ИКБО-23-20",
  "ИКБО-24-20",
];

local students = [
  {
    name: "Иванов И.И.",
    age: 19,
    group: "ИКБО-4-20",
  },
  {
    name: "Петров П.П.",
    age: 18,
    group: "ИКБО-5-20",
  },
  {
    name: "Сидоров С.С.",
    age: 18,
    group: "ИКБО-5-20",
  },
  {
    name: "Кузнецов Я.А.",
    age: 19,
    group: "ИКБО-2-22",
  },
];

{
  groups: groups,
  students: students,
  subject: "Конфигурационное управление",
}
```

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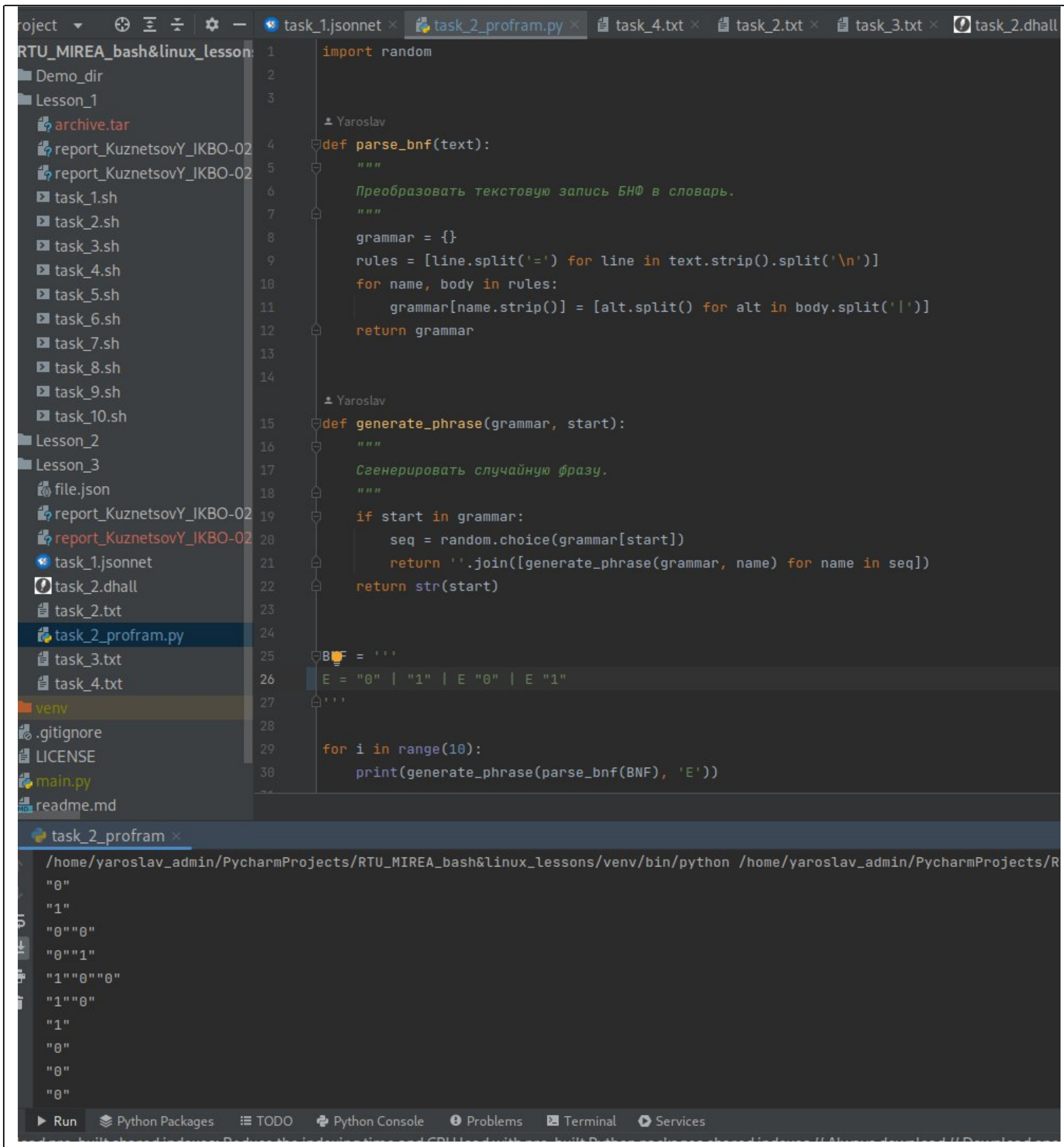
Задача № 2

```
let groups = [ "ИКБО-2-22", "ИКБО-1-20", "ИКБО-2-20", "ИКБО-3-20", "ИКБО-4-20", "ИКБО-5-20", "ИКБО-6-20", "ИКБО-7-20", "ИКБО-8-20", "ИКБО-9-20", "ИКБО-10-20", "ИКБО-11-20", "ИКБО-12-20", "ИКБО-13-20", "ИКБО-14-20", "ИКБО-15-20", "ИКБО-16-20", "ИКБО-17-20", "ИКБО-18-20", "ИКБО-19-20", "ИКБО-20-20", "ИКБО-21-20", "ИКБО-22-20", "ИКБО-23-20", "ИКБО-24-20" ]

let students = [ { age = 19, group = "ИКБО-4-20", name = "Иванов И.И." }, { age = 18, group = "ИКБО-5-20", name = "Петров П.П." }, { age = 18, group = "ИКБО-5-20", name = "Сидоров С.С." }, { age = 19, group = "ИКБО-2-22", name = "Кузнецов Я.А." } ]

in { groups = groups, students = students, subject = "Конфигурационное управление" }
```

Задача № 3



```python
import random


def parse_bnf(text):
    """
    Преобразовать текстовую запись БНФ в словарь.
    """
    grammar = {}
    rules = [line.split('=') for line in text.strip().split('\n')]
    for name, body in rules:
        grammar[name.strip()] = [alt.split() for alt in body.split('|')]
    return grammar


def generate_phrase(grammar, start):
    """
    Сгенерировать случайную фразу.
    """
    if start in grammar:
        seq = random.choice(grammar[start])
        return ''.join([generate_phrase(grammar, name) for name in seq])
    return str(start)


BNF = '''
E = "0" | "1" | E "0" | E "1"
'''

for i in range(10):
    print(generate_phrase(parse_bnf(BNF), 'E'))
```

```
/home/yaroslav_admin/PycharmProjects/RTU_MIREA_bash&linux_lessons/venv/bin/python /home/yaroslav_admin/PycharmProjects/R
"0"
"1"
"0""0"
"0""1"
"1""0""0"
"1""0"
"1"
"0"
"0"
"0"
```

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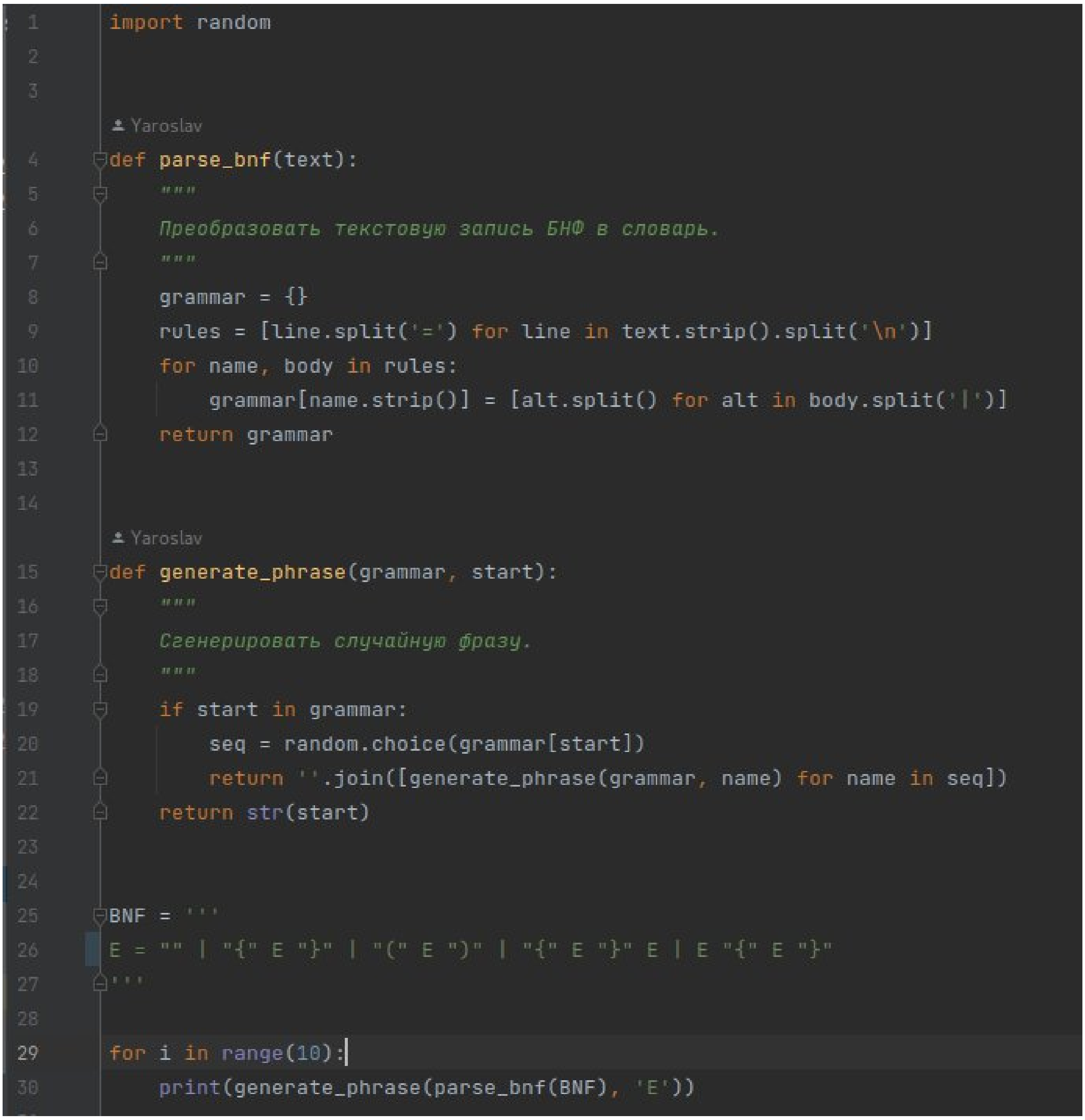
Задача № 4



```python
import random


def parse_bnf(text):
    """
    Преобразовать текстовую запись БНФ в словарь.
    """
    grammar = {}
    rules = [line.split('=') for line in text.strip().split('\n')]
    for name, body in rules:
        grammar[name.strip()] = [alt.split() for alt in body.split('|')]
    return grammar


def generate_phrase(grammar, start):
    """
    Сгенерировать случайную фразу.
    """
    if start in grammar:
        seq = random.choice(grammar[start])
        return ''.join([generate_phrase(grammar, name) for name in seq])
    return str(start)


BNF = '''
E = "" | "{" E "}" | "(" E ")" | "{" E "}" E | E "{" E "}"
'''

for i in range(10):
    print(generate_phrase(parse_bnf(BNF), 'E'))
```

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Исходный код скриптов и программ можно скачать :

https://github.com/I-love-linux-12-31/RTU_MIREA_bash_and_linux_lessons/tree/master/Lesson_2