

Департамент образования и науки города Москвы  
Государственное автономное образовательное учреждение  
высшего образования города Москвы  
«Московский городской педагогический университет»  
Институт цифрового образования  
Департамент информатики, управления и технологий

ДИСЦИПЛИНА: «Распределенные системы»

**Отчет по практической работе №2**

**Тема:**

**«Multicast»**

Преподаватель: Босенко Т.М.

Выполнила: Савина Е.С.

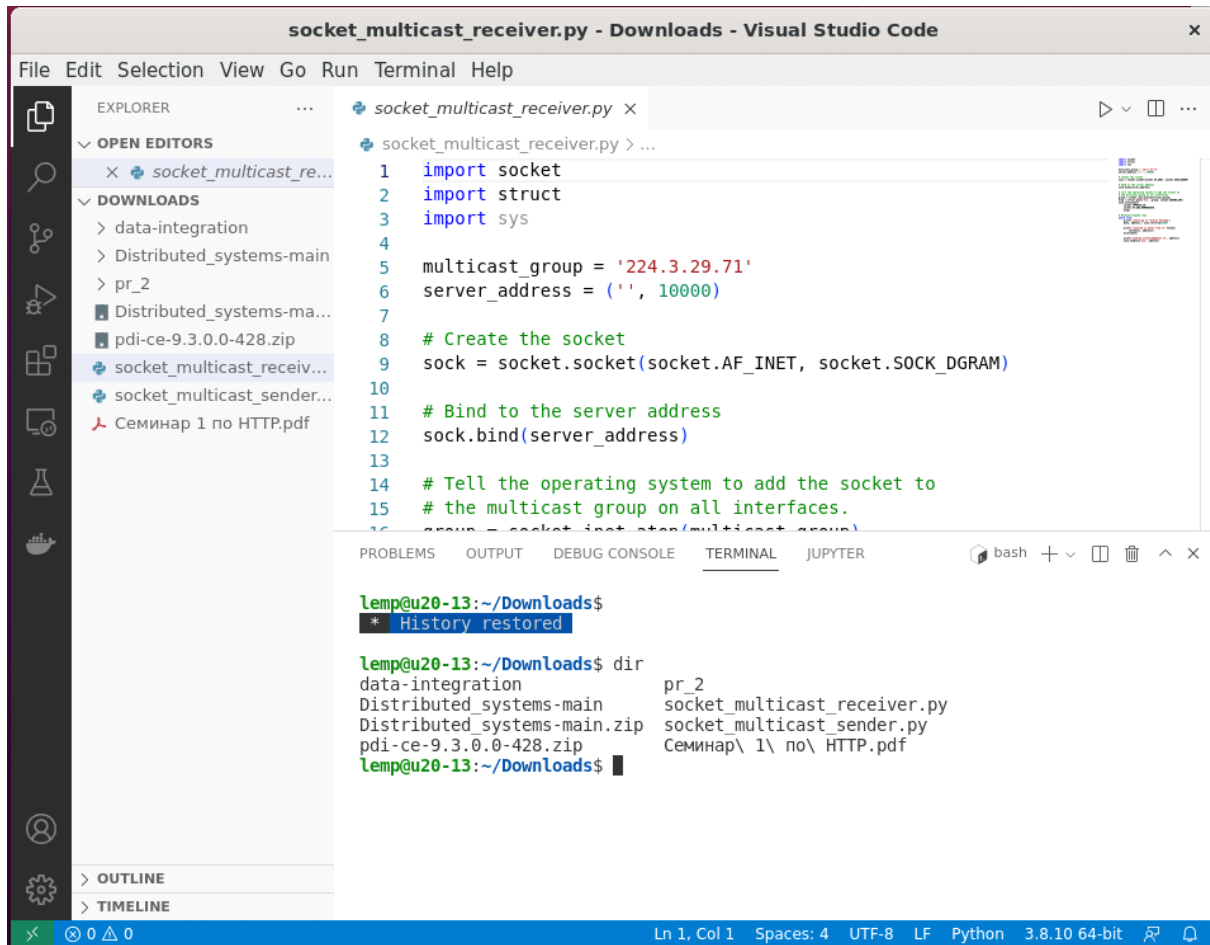
группа: ТП-191

Москва

2022

## Ход работы:

1. Проверка каталога и наличия в нем файлов `socket_multicast_reciever.py` и `socket_multicast_sender.py`:



2. Запуск получения и отправки сообщения, вывод результатов:

The screenshot shows a Visual Studio Code window with two Python files open: `socket_multicast_sender.py` and `socket_multicast_receiver.py`. The `socket_multicast_sender.py` file contains the following code:

```
1 multicast_group = ('224.3.29.71', 10000)
2
3 # Create the datagram socket
4 sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
5
6 # Set a timeout so the socket does not block
7 # indefinitely when trying to receive data.
8 sock.settimeout(0.2)
9
10 # Set the time-to-live for messages to 1 so they do not
11 # go past the local network segment.
12 ttl = struct.pack('b', 1)
13 sock.setsockopt(socket.IPPROTO_IP, socket.IP_MULTICAST_TTL, ttl)
14
15 try:
16     # Send data to the multicast group
17     print('sending {!r}'.format(message))
18     sent = sock.sendto(message, multicast_group)
```

The terminal output shows the execution of both scripts. The receiver script (`python3 socket_multicast_receiver.py`) shows the following output:

```
waiting to receive message
received 19 bytes from ('172.26.35.133', 43111)
b'very important data'
sending acknowledgement to ('172.26.35.133', 43111)

waiting to receive message
received 19 bytes from ('172.26.35.128', 40081)
b'very important data'
sending acknowledgement to ('172.26.35.128', 40081)

waiting to receive message
received 19 bytes from ('172.26.35.29', 58567)
b'very important data'
sending acknowledgement to ('172.26.35.29', 58567)
```

The sender script (`python3 socket_multicast_sender.py`) shows the following output:

```
sending b'very important data'
waiting to receive
received b'ack' from ('172.26.35.133', 10000)
waiting to receive
received b'ack' from ('172.26.35.132', 10000)
waiting to receive
received b'ack' from ('172.26.35.29', 10000)
waiting to receive
received b'ack' from ('172.26.35.139', 10000)
waiting to receive
received b'ack' from ('172.26.35.127', 10000)
waiting to receive
received b'ack' from ('172.26.35.123', 10000)
waiting to receive
received b'ack' from ('172.26.35.121', 10000)
```

### 3. Изменение отправляемого сообщения и повторение операции:

The screenshot shows a Visual Studio Code window with two Python files open: `socket_multicast_sender.py` and `socket_multicast_receiver.py`. The `socket_multicast_sender.py` file contains the following code:

```
1 import socket
2 import struct
3 import sys
4
5 message = b'Hello, World!'
6 multicast_group = ('224.3.29.71', 10000)
7
8 # Create the datagram socket
9 sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
10
11 # Set a timeout so the socket does not block
12 # indefinitely when trying to receive data.
13 sock.settimeout(0.2)
14
15 # Set the time-to-live for messages to 1 so they do not
16 # go past the local network segment.
17 ttl = struct.pack('b', 1)
18 sock.setsockopt(socket.IPPROTO_IP, socket.IP_MULTICAST_TTL, ttl)
19
20 try:
```

The terminal output shows the execution of both scripts. The receiver script (`python3 socket_multicast_receiver.py`) shows the following output:

```
received 6 bytes from ('172.26.35.30', 37645)
b'privet'
sending acknowledgement to ('172.26.35.30', 37645)

waiting to receive message
received 6 bytes from ('172.26.35.25', 60903)
b'privet'
sending acknowledgement to ('172.26.35.25', 60903)

waiting to receive message
received 19 bytes from ('172.26.35.37', 49372)
b'very important data'
sending acknowledgement to ('172.26.35.37', 49372)

waiting to receive message
timed out, no more responses
closing socket
```

The sender script (`python3 socket_multicast_sender.py`) shows the following output:

```
waiting to receive
received b'ack' from ('172.26.35.29', 10000)
waiting to receive
received b'ack' from ('172.26.35.124', 10000)
waiting to receive
received b'ack' from ('172.26.35.37', 10000)
waiting to receive
received b'ack' from ('172.26.35.123', 10000)
waiting to receive
received b'ack' from ('172.26.35.121', 10000)
waiting to receive
received b'ack' from ('172.26.35.30', 10000)
waiting to receive
timed out, no more responses
closing socket
```