**Отчет по лабораторной работе № 3 по курсу**

**"Фундаментальная информатика"**

Студент группы M80-110Б-21 Агеева Алиса Ивановна № по списку 2

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Работа выполнена: « » \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_20\_\_г.

Преподаватель: доцент каф. 806 Никулин Сергей Петрович

Отчет сдан « » \_\_\_\_\_\_\_\_\_20 \_\_\_ г., итоговая оценка \_\_\_\_\_

Подпись преподавателя \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. **Тема:** Сети и телекоммуникации в ОС UNIX

1. **Цель работы:** Изучение работы сетевых команд консоли OC Unix.
2. **Задание** (*вариант №*)**:**
3. **Оборудование** (лабораторное):

ЭВМ \_\_\_\_\_\_\_\_\_\_\_\_\_\_, процессор AMD Ryzen 7 4800H with Radeon Graphics 2.90 GHz\_\_\_\_\_\_, имя узла сети \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ с ОП \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Мб, НМД \_\_\_\_\_\_\_\_\_\_ Мб. Терминал \_\_\_\_\_\_\_\_\_\_ адрес \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Принтер \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Другие устройства \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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*Оборудование ПЭВМ студента, если использовалось:*

Процессор с ОП \_16\_ Гб, НМД \_512\_ Гб. Монитор 1920x1080 60Hz

Другие устройства \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **Программное обеспечение (лабораторное):**

Операционная система семейства \_\_\_\_\_\_\_\_\_\_\_, наименование \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ версия \_\_\_\_\_\_\_\_\_\_\_\_\_

интерпретатор команд \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ версия \_\_\_\_\_\_\_\_\_\_\_\_

Система программирования \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ версия \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Редактор текстов \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ версия \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Утилиты операционной системы \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Прикладные системы и программы \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Местонахождение и имена файлов программ и данных\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Программное обеспечение ЭВМ студента, если использовалось:*

Операционная система семейства Unux, наименование \_\_Ubuntu\_\_\_ версия \_18.04.5

интерпретатор команд \_\_ GNU bash\_\_\_\_\_\_ версия \_\_5.0.17\_\_\_\_.

Система программирования \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_версия \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Редактор текстов \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ версия \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Утилиты операционной системы: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Прикладные системы и программы:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Местонахождение и имена файлов программ и данных на домашнем компьютере /home/nastya\_\_\_\_\_\_\_\_\_\_\_\_\_

**6. Идея, метод, алгоритм** решения задачи(в формах:словесной,псевдокода,графической[блок-схема,диаграмма,рисунок,таблица] или формальные спецификации с пред- и постусловиями)

**ssh, telnet** - подключение к удаленной машине

**rlogin** - подключение к удаленной машине без запроса пароля (если между серверами установлены доверительные отношения)

**scp qwer.txt 218206@192.168.2.200:/stud/218218,**  **scp qwer.txt 218206@192.168.2.200:~/qwer.txt .**- способы копирования файла того же пользователя с текущей машины на удаленную машину

**ping** - узнать пинг локальной сети

**logout** - прервать соединение с локальной машиной  
**scp 218206@192.168.2.200:/stud/218218/qwer.txt apple/qwer1.txt, scp 218206@192.168.2.200:~/qwer.txt .** (точка означает текущую дирекцию) - способы копирования файла с удаленной машины на текущую

**scp -r qwer 218206@192.168.2.200 -** копирование директории вместе со всем ее содержимым на удаленную машину в домашний каталог  
**rsync -a qwer 218206@192.168.2.200** - синхронизации каталогов на разных ЭВМ  
**scp -r 218206@192.168.2.200:/stud/218218/qwer /home/nastya** - копирование директории с удаленной машины вместе со всем ее содержимым в текущую директорию  
**sftp 218206@192.168.2.200** - подключение к удаленной машине по протоколу sftp  
**tar -cf apple2.tar apple, pax -w f > f.pax** - создание архива и помещение в него всех файлов и поддиректории указанной директории  
**tar -xf apple.tar** - разархивация   
**tar -tvf apple.tar** - просмотр оглавления архива  
**gzip -9 -c apple.tar > apple.tgz, pax -w -x cpio apple > apple123.pax, tar -zcf qwer.tar.gz hi, tar -jcf qwer.tar.bz2 hi** - упаковка  
**gzip -d -c apple.tgz > apple1.tar** - распаковка  
**gzip -c -d apple.tgz | tar -xf -** - распаковка с одновременной разархивацией   
**iconv -c -f koi8-r -t cp1251 ggg.txt,** iconv -c -f koi8-r -f cp1251 ggg.txt - команды перекодировки  
**unix2dos, dos2unix** - конвертация текстового файла

**7. Сценарий выполнения работы** [план работы,первоначальный текст программы в черновике(можно на отдельном листе)итесты либо соображения по тестированию].

1. Подключение к удаленной машине
2. Копирование файлов с текущей машины на удаленную и наоборот
3. Подключение по протоколу sftp
4. Использование различных команд для архивирования/распаковки файлов
5. Использование различных команд для кодирования текста
6. Завершение работы на сервере

*Пункты 1-7 отчета составляются строго до начала лабораторной работы.*

**8. Распечатка протокола** (подклеить листинг окончательного варианта программы с тестовыми примерами,подписанныйпреподавателем).

[Astro@fedora ~]$ ssh 218206@192.168.2.200

218206@192.168.2.200's password:

Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-112-generic x86\_64)

\* Documentation: https://help.ubuntu.com

\* Management: https://landscape.canonical.com

\* Support: https://ubuntu.com/advantage

\* Canonical Livepatch is available for installation.

- Reduce system reboots and improve kernel security. Activate at:

https://ubuntu.com/livepatch

Last login: Mon Oct 4 13:38:27 2021 from 192.168.2.69

218206@cameron:~$ ruptime

alice- 0:04, 1 user, load 1.07, 0.65, 0.26

HVY-WXX9 down 5+20:59

ISKANDER-SWIdown 6+19:07

Maha down 16+00:25

cameron up 5+23:37, 8 users, load 0.51, 0.51, 0.41

client01 down 5+15:21

client02 up 1:46, 1 user, load 0.00, 0.00, 0.00

client03 down 5+19:36

client04 up 1:46, 0 users, load 0.00, 0.00, 0.00

client05 down 5+15:09

client06 down 8+13:19

client07 down 1+23:19

client08 down 3+16:33

client09 down 14+01:30

client10 up 3+22:03

client11 down 5+20:11

client12 down 1+19:27

client13 down 3+17:26

client14 down 12+15:49

client15 down 6+18:13

client16 down 8+16:00

client17 down 8+13:31

client18 down 1:22

client19 up 1:52, 0 users, load 0.58, 0.64, 0.70

client20 down 6+19:42

client21 down 3+16:33

client22 up 1:52, 1 user, load 0.29, 0.08, 0.07

client23 down 8+16:05

client24 down 17+16:57

client25 down 8+13:20

gg1-HP-ENVY-down 6+21:27

gingersamuradown 6+21:03

hp up 1:52, 0 users, load 0.00, 0.03, 0.11

pelis up 1:32, 1 user, load 0.22, 0.24, 0.23

pop-os up 1:40, 1 user, load 0.23, 0.25, 0.16

spiegel-Ideadown 3+21:07

user-IdeaPad up ??:??, 1 user, load 0.72, 1.13, 0.92

218206@cameron:~$ rlogin client22

The authenticity of host 'client22 (192.168.2.58)' can't be established.

ECDSA key fingerprint is SHA256:JVSWcfPxnZGctQxujanrTCaEYo4cfOaFjh2FovN2GBM.

Are you sure you want to continue connecting (yes/no)? yes

Warning: Permanently added 'client22,192.168.2.58' (ECDSA) to the list of known hosts.

218206@client22's password:

Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-112-generic i686)

\* Documentation: https://help.ubuntu.com

\* Management: https://landscape.canonical.com

\* Support: https://ubuntu.com/advantage

305 packages can be updated.

240 updates are security updates.

New release '20.04.3 LTS' available.

Run 'do-release-upgrade' to upgrade to it.

218206@client22:~$ exit

logout

Connection to client19 closed.

218206@cameron:~$ telnet client22

Trying 192.168.2.58...

telnet: Unable to connect to remote host: Connection refused

218206@cameron:~$ ssh client22

218206@client22's password:

Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-112-generic i686)

\* Documentation: https://help.ubuntu.com

\* Management: https://landscape.canonical.com

\* Support: https://ubuntu.com/advantage

305 packages can be updated.

240 updates are security updates.

New release '20.04.3 LTS' available.

Run 'do-release-upgrade' to upgrade to it.

Last login: Mon Oct 4 10:53:28 2021 from 192.168.2.200

218206@client22:~$ ls

apple apple.tgz Documents hello Pictures qwer Templates

apple.tar Desktop Downloads Music Public qwer.txt Videos

218206@client22:~$ scp 192.168.2.41 qwer.txt

cp: cannot stat '192.168.2.41': No such file or directory

218206@client22:~$ scp qwer.txt 218206@192.168.2.200:/stud/218206

218206@192.168.2.200's password:

qwer.txt 100% 0 0.0KB/s 00:00

218206@client22:~$ scp qwer.txt 218206@192.168.2.200:~/qwer.txt

218206@192.168.2.200's password:

qwer.txt 100% 0 0.0KB/s 00:00

218206@client22:~$ scp 218206@192.168.2.200:/stud/218206/qwer.txt apple/qwer1.txt

218206@192.168.2.200's password:

qwer.txt 100% 0 0.0KB/s 00:00

218206@client22:~$ scp 218206@192.168.2.200:~/qwer.txt .

218206@192.168.2.200's password:

qwer.txt 100% 0 0.0KB/s 00:00

218206@client22:~$ scp -r qwer 218206@192.168.2.200

218206@client22:~$ rsync -a qwer 218206@192.168.2.200

nastya@LAPTOP-CIOKQEV1:~$ scp -r 218206@192.168.2.200:/stud/218218/qwer /home/alice

218206@192.168.2.200's password:

hi 100% 3 0.5KB/s 00:00

218206@client22:~$ rm apple2.tar

218206@client22:~$ ls

218206@192.168.2.200 Desktop Downloads Music Public qwer.txt Videos

apple Documents hello Pictures qwer Templates

218206@client22:~$ tar -cf apple2.tar apple

218206@client22:~$ ls

218206@192.168.2.200 apple2.tar Documents hello Pictures qwer Templates

apple Desktop Downloads Music Public qwer.txt Videos

218206@client22:~$ logout

Connection to client22 closed.

218206@cameron:~$ cat >f

sdfsdfv

218206@cameron:~$ pax -w f > f.pax

218206@cameron:~$ ls

apple applepax.pax apple.tgz Documents f f.pax mt.tu Pictures qwer qwer.tar qwer.tar.gz test.tst Videos

apple1.tar apple.tar Desktop Downloads file.txt hola.txt Music Public qwer1 qwer.tar.bz2 Templates test.txt.

218206@cameron:~$ pax -w apple | ssh 218206@192.168.2.200 'pax -r'

218206@192.168.2.200's password:

218206@cameron:~$ ls

apple apple.tar Documents file.txt mt.tu Public qwer.tar Templates Videos

apple1.tar apple.tgz Downloads f.pax Music qwer qwer.tar.bz2 test.tst

applepax.pax Desktop f hola.txt Pictures qwer1 qwer.tar.gz test.txt

218206@cameron:~$ pax -w -x tar apple > appleapple.tar

218206@cameron:~$ ls

apple apple.tgz Downloads f.pax Music qwer qwer.tar.bz2 test.tst

appleapple.tar Desktop f hola.txt Pictures qwer1 qwer.tar.gz test.txt

applepax.pax Documents file.txt mt.tu Public qwer.tar Templates Videos

218206@cameron:~$ pax -w -x cpio apple > apple123.pax

218206@cameron:~$ ls

apple applepax.pax Documents file.txt mt.tu Public qwer.tar Templates Videos

apple123.pax apple.tgz Downloads f.pax Music qwer qwer.tar.bz2 test.tst

appleapple.tar Desktop f hola.txt Pictures qwer1 qwer.tar.gz test.txt

218206@client22:~$ sftp 218206@192.168.2.200

218206@192.168.2.200's password:

Connected to 192.168.2.200.

sftp> pwd

Remote working directory: /stud/218218

sftp> ls -l

drwx------ 2 218218 218218 4096 Sep 6 13:05 Desktop

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Documents

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Downloads

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Music

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Pictures

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Public

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Templates

drwxr-xr-x 2 218218 218218 4096 Sep 6 13:05 Videos

drwxrwxr-x 2 218218 218218 4096 Oct 4 14:52 apple

-rw-rw-r-- 1 218218 218218 10240 Oct 4 15:03 apple2.tar

-rw-rw-r-- 1 218218 218218 6 Oct 4 15:17 hola.txt

drwxrwxr-x 2 218218 218218 4096 Sep 29 21:09 qwer

sftp> !ls

apple Desktop Downloads Music Public Templates

apple2.tar Documents hola.txt Pictures qwer Videos

sftp> get hola.txt

Fetching /stud/218218/hola.txt to hola.txt

/stud/218218/hola.txt 0% 0 0.0KB/s --:-- ETA

sftp> put hola.txt

Uploading hola.txt to /stud/218218/hola.txt

hola.txt 100% 0 0.0KB/s 00:00

sftp> mget hola.txt

Fetching /stud/218218/hola.txt to hola.txt

sftp> mput hola.txt

Uploading hola.txt to /stud/218218/hola.txt

hola.txt 100% 0 0.0KB/s 00:00

218206@client22:~$ tar -cf apple.tar apple

218206@client22:~$ ls

apple Desktop Downloads Music Public qwer1 Templates

apple.tar Documents hola.txt Pictures qwer qwer.tar Videos

218206@client22:~$ tar -xf apple.tar

tar: apple/qwer1.txt: time stamp 2021-10-04 14:52:07 is 6639.375945571 s in the future

tar: apple: time stamp 2021-10-04 14:52:07 is 6639.341052304 s in the future

218206@client22:~$ ls

apple Desktop Downloads Music Public qwer1 Templates

apple.tar Documents hola.txt Pictures qwer qwer.tar Videos

218206@client22:~$ tar -tvf apple.tar

drwxrwxr-x 218218/218218 0 2021-10-04 14:52 apple/

-rw-r--r-- 218218/218218 0 2021-10-04 14:52 apple/qwer1.txt

218206@client22:~$

218206@client22:~$ gzip -9 -c apple.tar > apple.tgz

218206@client22:~$ ls

apple apple.tgz Documents hola.txt Pictures qwer qwer.tar Videos

apple.tar Desktop Downloads Music Public qwer1 Templates

218206@client22:~$ tar -zcf qwer.tar.gz hi

tar: hi: Cannot stat: No such file or directory

tar: Exiting with failure status due to previous errors

218206@client22:~$ tar -jcf qwer.tar.bz2 hi

tar: hi: Cannot stat: No such file or directory

tar: Exiting with failure status due to previous errors

218206@client22:~$ gzip -d -c apple.tgz > apple1.tar

218206@client22:~$ ls

apple apple.tar Desktop Downloads Music Public qwer1 qwer.tar.bz2 Templates

apple1.tar apple.tgz Documents hola.txt Pictures qwer qwer.tar qwer.tar.gz Videos

218206@client22:~$ gzip -c -d apple.tgz | tar -xf -

tar: apple/qwer1.txt: time stamp 2021-10-04 14:52:07 is 6303.386662981 s in the future

tar: apple: time stamp 2021-10-04 14:52:07 is 6303.353018736 s in the future

218206@client22:~$ cat >> file.txt

QWERTY

218206@client22:~$ cat file.txt

QWERTY

218206@client22:~$ echo 'ADDFGRYDJDYDYT' > ggg.txt

218206@client22:~$ ls

apple apple.tgz f hola.txt Public qwer.tar.bz2 test.txt

apple123.pax Desktop file.txt mt.tu qwer qwer.tar.gz Videos

appleapple.tar Documents f.pax Music qwer1 Templates

applepax.pax Downloads ggg.txt Pictures qwer.tar test.tst

218206@client22:~$ file ggg.txt

ggg.txt: UTF-8 Unicode text

218206@client22:~$ iconv -c -f koi8-r -t cp1251 ggg.txt

218206@client22:~$ cat ggg.txt

ADDFGRYDJDYDYT

218206@client22:~$ iconv -c -f koi8-r -f cp1251 ggg.txt

Р™Р¦РЈРљР•РќР“РЁР©Р—Р”РћРћР›Р’РџРђРўР¬РњР Р“РЁРЈР

218206@cameron:~$ unix2dos qwer.txt

unix2dos: converting file qwer.txt to DOS format...

218206@cameron:~$ dos2unix qwer.txt

dos2unix: converting file qwer.txt to Unix format...

218206@cameron:~$ logout

Connection to 192.168.2.200 closed.

**9. Дневник отладки** должен содержать дату и время сеансов отладки и основные события(ошибки в сценарии и программе,нестандартные ситуации) и краткие комментарии к ним. В дневнике отладки приводятся сведения об использовании других ЭВМ, существенном участии преподавателя и других лиц в написании и отладке программы.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| № | Лаб. | Дата | Время | Событие | Действие по исправлению | Примечание |
|  | или |  |  |  |  |  |
|  | дом. |  |  |  |  |  |
|  |  |  |  |  |  |  |

1. **Замечания автора** по существу работы \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. **Выводы**

\_\_\_\_В процессе выполнения лабораторной работы я научился пользоваться сетевыми командами консоли OC Unix, командами для архивирования и распаковки, а также командами для перекодирования текста.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Недочёты при выполнении задания могут быть устранены следующим образом: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Подпись студента \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_