BURSA TECHNICAL UNIVERSITY

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 1/A

November 20, 2024, 11:00–13:00

Student Name :
Student ID :
GitLab User Name :
Instructor : Asst. Prof. Dr. Levent Aydinbakar
TA : Res. Asst. Ismail Hos

Question:	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	Total
Points:	25	25	25	25	10	10	120
Score:							

Instructions

1. This booklet contains 2 pages.
2. You have **90 minutes** to complete the examination.
3. Open the `Firefox` web browser, press `Windows` key and type "Firefox". Click on `Open network login page`. Follow the instructions to connect your computer to the internet.
4. You must download necessary files from `soscfd.com/midterm.zip` link. Use your Firefox web browser. Download the zip file. And read the `README.md` file in it for instructions.
5. Only students who has an appropriate GitLab Repository can join this exam.
6. You may **only use the Terminal Application** in this exam. You **may not** use any web browser or any other programs.
7. You are recommended to work at `/home/btu/MidtermExam` directory.
8. Change the header with your group name, student ID, name and surname as a comment on the top of **each script** you write in this exam. See the example comments for shell scripts.
   - 2 # Author : 1/A 12345678900 Name Surname
9. Change the header with your group name, student ID, name and surname as a comment on the top of **each script** you write in this exam. See the example comments for Python scripts.
   - 3 # Author : 1/A 12345678900 Name Surname
10. You may use one (1) double-sided A4 paper (210×297 mm^2) with notes that you have prepared in your handwriting. You may not use printed or photocopied paper sheets, lecture notes, books, or other students.
11. At the end, you must submit your scripts to GitLab using `submitMidterm.sh` file downloaded in `midterm.zip` file from `soscfd.com/midterm.zip`.
12. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script named `makeDirs.sh` creating the folders and files as shown below with `ls *` command. Notice that the command `ls *` below is run at `answer1` folder. Also write your student ID, name and surname (1234567890 Name Surname) in each file at the end of the `makeDirs.sh` file.

```
makinelab% ls *                                          ~/MidtermExam/answer1 11:10AM
README.md

codes/:
calculate.py

files/:
lists.txt

results/:
results.txt
```

Q2. (25 points) Write a shell script named `multipleFiles.sh` creating 100 files in a folder named `answer2`. The files must be named as `001.txt`, `002.txt`, ..., `100.txt` and the script must write whether the file number is odd or even in the file. For example, `This is an odd number.` in `file001.txt` and `This is an even number.` in `file100.txt`.

Q3. (25 points) Write a Python script (`calcFactorial.py`) taking a number from user with `argparse` module and printing the factorial of the number. The script must work with the command below.

```
makinelab% python3 calcFactorial.py 5                    ~/MidtermExam 11:10AM
120
```

Q4. (25 points) Write a Python script named as `calculateAverage.py` taking 3 numbers from user with `argparse` module and prints the average of these three numbers. The usage of your script and the result must be as follows.

```
makinelab% python3 calculateAverage.py -f 5 -s 10 -t 15     ~/MidtermExam 11:10AM
Average of 5, 10 and 15 is 10.
```

Q5. (10 points) Add a `README.md` file briefly explaining what does each script do in this repository.

Q6. (10 points) Write two shell scripts (`runAll.sh` and `cleanDirectories.sh`) in `MidtermExam` running all the scripts you wrote and removing all the files and folders generated by your scripts. **Please be careful at this point. Do not remove the scripts you wrote**.