Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 1/A

November 25, 2022, 17:00–18:15

Student Name :
Student ID :
GitLab User Name :

Instructor : 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 **75 minutes** to complete the examination.
3. You may **only use the Terminal Application** in this exam. You **may not** use any web browser or any other programs.
4. Only students who has an appropriate GitLab Repository can join this exam. Your $USER_NAME should be in `yourStudentID_name_surname` format.
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6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 1/A 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 1/A 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`answer1_1A.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `answer1_1A`. Change `answer1_1A.sh`'s working directory into it.
- Make 13 folders with the names 1 to 13 in `answer1_1A`. The new folder names should have four characters, filled with zeros such as `0001`.
- Generate 93 text files with the names 1 to 93 in each 13 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`answer2_1A.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `answer2_1A`. Do not change `answer2_1A.sh`'s working directory into it.
- Make 3 folders in `answer2_1A`. Read the names from the commandline. Name the folders as `fOne`, `fTwo` and `fThree`.
- Generate 13 text files with the names 15 to 75 skipping 5 in each 3 folders. File names should have two characters except the file extension (e.g. `20.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `20.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`answer3_1A.sh`) in `MidtermExam` as described below.

- Make a folder as `answer3_1A`.
- Create a 3×800 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `answer3_1A` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 800 bytes and binary file is 800 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`answer4_1A.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×75 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of two.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `answer1_1A.sh`, `answer2_1A.sh`, `answer3_1A.py`, and `answer4_1A.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `answer1_1A.sh`,
  - `answer2_1A.sh`,
  - `answer3_1A.py`,
  - `answer4_1A.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 1/B

November 25, 2022, 17:00–18:15

Student Name :
Student ID :
GitLab User Name :

Instructor : Dr. Levent Aydinbakar
TA : Res. Asst. Ismail Hos

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   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 1/B 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 1/B 1234567890 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.
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Q1. (25 points) Write a shell script (`A1_1B.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `A1_1B`. Change `A1_1B.sh`'s working directory into it.
- Make 15 folders with the names 1 to 15 in `A1_1B`. The new folder names should have four characters, filled with zeros such as `0001`.
- Generate 91 text files with the names 1 to 91 in each 15 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`A2_1B.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `A2_1B`. Do not change `A2_1B.sh`'s working directory into it.
- Make 3 folders in `A2_1B`. Read the names from the commandline. Name the folders as `FOne`, `FTwo` and `FThree`.
- Generate 11 text files with the names 10 to 60 skipping 5 in each 3 folders. File names should have four characters except the file extension (e.g. `0020.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `0020.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`A3_1B.sh`) in `MidtermExam` as described below.

- Make a folder as `A3_1B`.
- Create a 3×1100 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `A3_1B` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1100 bytes and binary file is 1100 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`A4_1B.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×80 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of four.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `A1_1B.sh`, `A2_1B.sh`, `A3_1B.py`, and `A4_1B.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `A1_1B.sh`,
  - `A2_1B.sh`,
  - `A3_1B.py`,
  - `A4_1B.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 1/C

November 25, 2022, 17:00–18:15

Student Name :
Student ID :
GitLab User Name :

Instructor : Dr. Levent Aydinbakar
TA : Res. Asst. Ismail Hos

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9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 1/C 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 1/C 1234567890 Name Surname`
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Q1. (25 points) Write a shell script (`ANSWER1_1C.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `ANSWER1_1C`. Change `ANSWER1_1C.sh`'s working directory into it.
- Make 15 folders with the names 1 to 15 in `ANSWER1_1C`. The new folder names should have five characters, filled with zeros such as `00001`.
- Generate 97 text files with the names 1 to 97 in each 15 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`ANSWER2_1C.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `ANSWER2_1C`. Do not change `ANSWER2_1C.sh`'s working directory into it.
- Make 3 folders in `ANSWER2_1C`. Read the names from the commandline. Name the folders as `FOne`, `FTwo` and `FThree`.
- Generate 12 text files with the names 10 to 65 skipping 5 in each 3 folders. File names should have three characters except the file extension (e.g. `020.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `020.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`ANSWER3_1C.sh`) in `MidtermExam` as described below.

- Make a folder as `ANSWER3_1C`.
- Create a 3×1900 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `ANSWER3_1C` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1900 bytes and binary file is 1900 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`ANSWER4_1C.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×80 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of five.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `ANSWER1_1C.sh`, `ANSWER2_1C.sh`, `ANSWER3_1C.py`, and `ANSWER4_1C.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `ANSWER1_1C.sh`,
  - `ANSWER2_1C.sh`,
  - `ANSWER3_1C.py`,
  - `ANSWER4_1C.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

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Midterm Exam

Group 1/D

November 25, 2022, 17:00–18:15

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GitLab User Name :

Instructor : Dr. Levent Aydinbakar
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   - `2 # 1/D 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 1/D 1234567890 Name Surname`
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Q1. (25 points) Write a shell script (`Answer1_1D.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `Answer1_1D`. Change `Answer1_1D.sh`'s working directory into it.
- Make 17 folders with the names 1 to 17 in `Answer1_1D`. The new folder names should have three characters, filled with zeros such as `001`.
- Generate 91 text files with the names 1 to 91 in each 17 folders. File names should have four characters except the file extension (e.g. `0002.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`Answer2_1D.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `Answer2_1D`. Do not change `Answer2_1D.sh`'s working directory into it.
- Make 3 folders in `Answer2_1D`. Read the names from the commandline. Name the folders as `folderOne`, `folderTwo` and `folderThree`.
- Generate 15 text files with the names 0 to 70 skipping 5 in each 3 folders. File names should have two characters except the file extension (e.g. `05.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an even file." in `05.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`Answer3_1D.sh`) in `MidtermExam` as described below.

- Make a folder as `Answer3_1D`.
- Create a 3×1100 array of ones.
- Multiply each row of the array with the row number and π number.
- Write the array into a text file and a binary file, both located in `Answer3_1D` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1100 bytes and binary file is 1100 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`Answer4_1D.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×90 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of three.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

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Q1. (25 points) Write a shell script (`script1_1E.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `script1_1E`. Change `script1_1E.sh`'s working directory into it.
- Make 12 folders with the names 1 to 12 in `script1_1E`. The new folder names should have five characters, filled with zeros such as `00001`.
- Generate 99 text files with the names 1 to 99 in each 12 folders. File names should have six characters except the file extension (e.g. `000002.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`script2_1E.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `script2_1E`. Do not change `script2_1E.sh`'s working directory into it.
- Make 3 folders in `script2_1E`. Read the names from the commandline. Name the folders as `FOLDEROne`, `FOLDERTwo` and `FOLDERThree`.
- Generate 11 text files with the names 25 to 75 skipping 5 in each 3 folders. File names should have three characters except the file extension (e.g. `025.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an even file." in `025.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`script3_1E.sh`) in `MidtermExam` as described below.

- Make a folder as `script3_1E`.
- Create a 3×1000 array of ones.
- Multiply each row of the array with the row number and π number.
- Write the array into a text file and a binary file, both located in `script3_1E` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1000 bytes and binary file is 1000 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`script4_1E.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×75 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of two.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `script1_1E.sh`, `script2_1E.sh`, `script3_1E.py`, and `script4_1E.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `script1_1E.sh`,
  - `script2_1E.sh`,
  - `script3_1E.py`,
  - `script4_1E.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 2/A

November 25, 2022, 18:20–19:35

Student Name :
Student ID :
GitLab User Name :

Instructor : 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

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5. **Start with** the commands below to set the computer that you use GitLab on the exam computer.
   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 2/A 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 2/A 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`ANSWER1_2A.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `ANSWER1_2A`. Change `ANSWER1_2A.sh`'s working directory into it.
- Make 15 folders with the names 1 to 15 in `ANSWER1_2A`. The new folder names should have five characters, filled with zeros such as `00001`.
- Generate 97 text files with the names 1 to 97 in each 15 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`ANSWER2_2A.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `ANSWER2_2A`. Do not change `ANSWER2_2A.sh`'s working directory into it.
- Make 3 folders in `ANSWER2_2A`. Read the names from the commandline. Name the folders as `FOne`, `FTwo` and `FThree`.
- Generate 12 text files with the names 10 to 65 skipping 5 in each 3 folders. File names should have three characters except the file extension (e.g. `020.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `020.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`ANSWER3_2A.sh`) in `MidtermExam` as described below.

- Make a folder as `ANSWER3_2A`.
- Create a 3×1900 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `ANSWER3_2A` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1900 bytes and binary file is 1900 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`ANSWER4_2A.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×80 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of five.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `ANSWER1_2A.sh`, `ANSWER2_2A.sh`, `ANSWER3_2A.py`, and `ANSWER4_2A.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `ANSWER1_2A.sh`,
  - `ANSWER2_2A.sh`,
  - `ANSWER3_2A.py`,
  - `ANSWER4_2A.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 2/B

November 25, 2022, 18:20–19:35

Student Name :
Student ID :
GitLab User Name :

Instructor : 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

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5. **Start with** the commands below to set the computer that you use GitLab on the exam computer.
   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 2/B 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 2/B 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`answer1_2B.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `answer1_2B`. Change `answer1_2B.sh`'s working directory into it.
- Make 13 folders with the names 1 to 13 in `answer1_2B`. The new folder names should have four characters, filled with zeros such as `0001`.
- Generate 93 text files with the names 1 to 93 in each 13 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`answer2_2B.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `answer2_2B`. Do not change `answer2_2B.sh`'s working directory into it.
- Make 3 folders in `answer2_2B`. Read the names from the commandline. Name the folders as `fOne`, `fTwo` and `fThree`.
- Generate 13 text files with the names 15 to 75 skipping 5 in each 3 folders. File names should have two characters except the file extension (e.g. `20.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `20.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`answer3_2B.sh`) in `MidtermExam` as described below.

- Make a folder as `answer3_2B`.
- Create a 3×800 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `answer3_2B` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 800 bytes and binary file is 800 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`answer4_2B.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×75 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of two.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `answer1_2B.sh`, `answer2_2B.sh`, `answer3_2B.py`, and `answer4_2B.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `answer1_2B.sh`,
  - `answer2_2B.sh`,
  - `answer3_2B.py`,
  - `answer4_2B.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 2/C

November 25, 2022, 18:20–19:35

Student Name :
Student ID :
GitLab User Name :

Instructor : 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

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   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 2/C 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 2/C 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`Answer1_2C.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `Answer1_2C`. Change `Answer1_2C.sh`'s working directory into it.
- Make 17 folders with the names 1 to 17 in `Answer1_2C`. The new folder names should have three characters, filled with zeros such as `001`.
- Generate 91 text files with the names 1 to 91 in each 17 folders. File names should have four characters except the file extension (e.g. `0002.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`Answer2_2C.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `Answer2_2C`. Do not change `Answer2_2C.sh`'s working directory into it.
- Make 3 folders in `Answer2_2C`. Read the names from the commandline. Name the folders as `folderOne`, `folderTwo` and `folderThree`.
- Generate 15 text files with the names 0 to 70 skipping 5 in each 3 folders. File names should have two characters except the file extension (e.g. `05.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an even file." in `05.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`Answer3_2C.sh`) in `MidtermExam` as described below.

- Make a folder as `Answer3_2C`.
- Create a 3×1100 array of ones.
- Multiply each row of the array with the row number and π number.
- Write the array into a text file and a binary file, both located in `Answer3_2C` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1100 bytes and binary file is 1100 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`Answer4_2C.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×90 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of three.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `Answer1_2C.sh`, `Answer2_2C.sh`, `Answer3_2C.py`, and `Answer4_2C.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `Answer1_2C.sh`,
  - `Answer2_2C.sh`,
  - `Answer3_2C.py`,
  - `Answer4_2C.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 2/D

November 25, 2022, 18:20–19:35

Student Name :
Student ID :
GitLab User Name :

Instructor : 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:							

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7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 2/D 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 2/D 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`script1_2D.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `script1_2D`. Change `script1_2D.sh`'s working directory into it.
- Make 12 folders with the names 1 to 12 in `script1_2D`. The new folder names should have five characters, filled with zeros such as `00001`.
- Generate 99 text files with the names 1 to 99 in each 12 folders. File names should have six characters except the file extension (e.g. `000002.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`script2_2D.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `script2_2D`. Do not change `script2_2D.sh`'s working directory into it.
- Make 3 folders in `script2_2D`. Read the names from the commandline. Name the folders as `FOLDEROne`, `FOLDERTwo` and `FOLDERThree`.
- Generate 11 text files with the names 25 to 75 skipping 5 in each 3 folders. File names should have three characters except the file extension (e.g. `025.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an even file." in `025.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`script3_2D.sh`) in `MidtermExam` as described below.

- Make a folder as `script3_2D`.
- Create a 3×1000 array of ones.
- Multiply each row of the array with the row number and π number.
- Write the array into a text file and a binary file, both located in `script3_2D` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1000 bytes and binary file is 1000 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`script4_2D.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×75 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of two.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `script1_2D.sh`, `script2_2D.sh`, `script3_2D.py`, and `script4_2D.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `script1_2D.sh`,
  - `script2_2D.sh`,
  - `script3_2D.py`,
  - `script4_2D.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 2/E

November 25, 2022, 18:20–19:35

Student Name :
Student ID :
GitLab User Name :

Instructor : Dr. Levent Aydinbakar
TA : Res. Asst. Ismail Hos

Question:	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	Total
Points:	25	25	25	25	10	10	120
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   - `git add MidtermExam`
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   - `2 # 2/E 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 2/E 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`A1_2E.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `A1_2E`. Change `A1_2E.sh`'s working directory into it.
- Make 15 folders with the names 1 to 15 in `A1_2E`. The new folder names should have four characters, filled with zeros such as `0001`.
- Generate 91 text files with the names 1 to 91 in each 15 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`A2_2E.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `A2_2E`. Do not change `A2_2E.sh`'s working directory into it.
- Make 3 folders in `A2_2E`. Read the names from the commandline. Name the folders as `FOne`, `FTwo` and `FThree`.
- Generate 11 text files with the names 10 to 60 skipping 5 in each 3 folders. File names should have four characters except the file extension (e.g. `0020.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `0020.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`A3_2E.sh`) in `MidtermExam` as described below.

- Make a folder as `A3_2E`.
- Create a 3×1100 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `A3_2E` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1100 bytes and binary file is 1100 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`A4_2E.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×80 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of four.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `A1_2E.sh`, `A2_2E.sh`, `A3_2E.py`, and `A4_2E.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `A1_2E.sh`,
  - `A2_2E.sh`,
  - `A3_2E.py`,
  - `A4_2E.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 3/A

November 25, 2022, 17:00–21:00

Student Name :
Student ID :
GitLab User Name :

Instructor : 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 **75 minutes** to complete the examination.
3. You may **only use the Terminal Application** in this exam. You **may not** use any web browser or any other programs.
4. Only students who has an appropriate GitLab Repository can join this exam. Your $USER_NAME should be in `yourStudentID_name_surname` format.
5. **Start with** the commands below to set the computer that you use GitLab on the exam computer.
   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 3/A 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 3/A 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`script1_3A.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `script1_3A`. Change `script1_3A.sh`'s working directory into it.
- Make 12 folders with the names 1 to 12 in `script1_3A`. The new folder names should have five characters, filled with zeros such as `00001`.
- Generate 99 text files with the names 1 to 99 in each 12 folders. File names should have six characters except the file extension (e.g. `000002.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`script2_3A.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `script2_3A`. Do not change `script2_3A.sh`'s working directory into it.
- Make 3 folders in `script2_3A`. Read the names from the commandline. Name the folders as `FOLDEROne`, `FOLDERTwo` and `FOLDERThree`.
- Generate 11 text files with the names 25 to 75 skipping 5 in each 3 folders. File names should have three characters except the file extension (e.g. `025.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an even file." in `025.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`script3_3A.sh`) in `MidtermExam` as described below.

- Make a folder as `script3_3A`.
- Create a 3×1000 array of ones.
- Multiply each row of the array with the row number and π number.
- Write the array into a text file and a binary file, both located in `script3_3A` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1000 bytes and binary file is 1000 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`script4_3A.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×75 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of two.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `script1_3A.sh`, `script2_3A.sh`, `script3_3A.py`, and `script4_3A.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `script1_3A.sh`,
  - `script2_3A.sh`,
  - `script3_3A.py`,
  - `script4_3A.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 3/B

November 25, 2022, 17:00–21:00

Student Name :
Student ID :
GitLab User Name :

Instructor : 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

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3. You may **only use the Terminal Application** in this exam. You **may not** use any web browser or any other programs.
4. Only students who has an appropriate GitLab Repository can join this exam. Your $USER_NAME should be in `yourStudentID_name_surname` format.
5. **Start with** the commands below to set the computer that you use GitLab on the exam computer.
   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 3/B 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 3/B 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`Answer1_3B.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `Answer1_3B`. Change `Answer1_3B.sh`'s working directory into it.
- Make 17 folders with the names 1 to 17 in `Answer1_3B`. The new folder names should have three characters, filled with zeros such as `001`.
- Generate 91 text files with the names 1 to 91 in each 17 folders. File names should have four characters except the file extension (e.g. `0002.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`Answer2_3B.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `Answer2_3B`. Do not change `Answer2_3B.sh`'s working directory into it.
- Make 3 folders in `Answer2_3B`. Read the names from the commandline. Name the folders as `folderOne`, `folderTwo` and `folderThree`.
- Generate 15 text files with the names 0 to 70 skipping 5 in each 3 folders. File names should have two characters except the file extension (e.g. `05.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an even file." in `05.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`Answer3_3B.sh`) in `MidtermExam` as described below.

- Make a folder as `Answer3_3B`.
- Create a 3×1100 array of ones.
- Multiply each row of the array with the row number and π number.
- Write the array into a text file and a binary file, both located in `Answer3_3B` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1100 bytes and binary file is 1100 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`Answer4_3B.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×90 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of three.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `Answer1_3B.sh`, `Answer2_3B.sh`, `Answer3_3B.py`, and `Answer4_3B.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `Answer1_3B.sh`,
  - `Answer2_3B.sh`,
  - `Answer3_3B.py`,
  - `Answer4_3B.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 3/C

November 25, 2022, 17:00–21:00

Student Name :
Student ID :
GitLab User Name :

Instructor : 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

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4. Only students who has an appropriate GitLab Repository can join this exam. Your $USER_NAME should be in `yourStudentID_name_surname` format.
5. **Start with** the commands below to set the computer that you use GitLab on the exam computer.
   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 3/C 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 3/C 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`A1_3C.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `A1_3C`. Change `A1_3C.sh`'s working directory into it.
- Make 15 folders with the names 1 to 15 in `A1_3C`. The new folder names should have four characters, filled with zeros such as `0001`.
- Generate 91 text files with the names 1 to 91 in each 15 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`A2_3C.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `A2_3C`. Do not change `A2_3C.sh`'s working directory into it.
- Make 3 folders in `A2_3C`. Read the names from the commandline. Name the folders as `FOne`, `FTwo` and `FThree`.
- Generate 11 text files with the names 10 to 60 skipping 5 in each 3 folders. File names should have four characters except the file extension (e.g. `0020.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `0020.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`A3_3C.sh`) in `MidtermExam` as described below.

- Make a folder as `A3_3C`.
- Create a 3×1100 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `A3_3C` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1100 bytes and binary file is 1100 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`A4_3C.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×80 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of four.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `A1_3C.sh`, `A2_3C.sh`, `A3_3C.py`, and `A4_3C.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `A1_3C.sh`,
  - `A2_3C.sh`,
  - `A3_3C.py`,
  - `A4_3C.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 3/D

November 25, 2022, 17:00–21:00

Student Name :
Student ID :
GitLab User Name :

Instructor : 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:							

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   - `git config --global user.name "$USER_NAME"`
   - `git config --global user.email "$USER_EMAIL"`
6. **Remove** the old `ComputerProgramming2022` folder if exists on your working directory.
7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 3/D 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 3/D 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`ANSWER1_3D.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `ANSWER1_3D`. Change `ANSWER1_3D.sh`'s working directory into it.
- Make 15 folders with the names 1 to 15 in `ANSWER1_3D`. The new folder names should have five characters, filled with zeros such as `00001`.
- Generate 97 text files with the names 1 to 97 in each 15 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`ANSWER2_3D.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `ANSWER2_3D`. Do not change `ANSWER2_3D.sh`'s working directory into it.
- Make 3 folders in `ANSWER2_3D`. Read the names from the commandline. Name the folders as `FOne`, `FTwo` and `FThree`.
- Generate 12 text files with the names 10 to 65 skipping 5 in each 3 folders. File names should have three characters except the file extension (e.g. `020.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `020.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`ANSWER3_3D.sh`) in `MidtermExam` as described below.

- Make a folder as `ANSWER3_3D`.
- Create a 3×1900 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `ANSWER3_3D` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 1900 bytes and binary file is 1900 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`ANSWER4_3D.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×80 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of five.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `ANSWER1_3D.sh`, `ANSWER2_3D.sh`, `ANSWER3_3D.py`, and `ANSWER4_3D.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `ANSWER1_3D.sh`,
  - `ANSWER2_3D.sh`,
  - `ANSWER3_3D.py`,
  - `ANSWER4_3D.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.

Computer Programming (C/C++)

MECH0291

Midterm Exam

Group 3/E

November 25, 2022, 17:00–21:00

Student Name :
Student ID :
GitLab User Name :

Instructor : 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:							

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7. Download your ComputerProgramming2022 repository from GitLab with the command below, create a folder as `MidtermExam` if you do not have already created, and put the files you make in this exam in this folder.
   - `git clone https://gitlab.com/$USER_NAME/ComputerProgramming2022.git`
8. At the end, **you must upload** your codes into the same repository using the commands below. Those files will be evaluated and marked as your midterm exam grade.
   - `git add MidtermExam`
   - `git commit -m "Add MidtermExam"`
   - `git push origin main`
9. Add 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 and Python scripts below.
   - `1 #!/bin/zsh`
   - `2 # 3/E 1234567890 Name Surname`
   - `1 #!/usr/bin/env python3`
   - `2 # 3/E 1234567890 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. The maximum point you can obtain in this exam is 100.

Q1. (25 points) Write a shell script (`answer1_3E.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `answer1_3E`. Change `answer1_3E.sh`'s working directory into it.
- Make 13 folders with the names 1 to 13 in `answer1_3E`. The new folder names should have four characters, filled with zeros such as `0001`.
- Generate 93 text files with the names 1 to 93 in each 13 folders. File names should have two characters except the file extension (e.g. `02.txt`).
- Write "`StudentID`", "`Name`", "`Surname`", "`$F`", "`$f`" as five lines in each file. Here `$F` is the folder number and `$f` is the file number without zeros.
- Make the shell script executable.

Q2. (25 points) Write a shell script (`answer2_3E.sh`) in `MidtermExam` folder as described below.

- Create a folder so called `answer2_3E`. Do not change `answer2_3E.sh`'s working directory into it.
- Make 3 folders in `answer2_3E`. Read the names from the commandline. Name the folders as `fOne`, `fTwo` and `fThree`.
- Generate 13 text files with the names 15 to 75 skipping 5 in each 3 folders. File names should have two characters except the file extension (e.g. `20.txt`).
- Write a line in the files if it is an odd number file or an even number file. Such as, "This is an odd file." in `20.txt`.
- Make the shell script executable.

Q3. (25 points) Write a Python script (`answer3_3E.sh`) in `MidtermExam` as described below.

- Make a folder as `answer3_3E`.
- Create a 3×800 array of ones.
- Multiply each column of the array with the column number and π number.
- Write the array into a text file and a binary file, both located in `answer3_3E` folder.
- Check the sizes of the files (`os.path.getsize(filepath)`) and print as, for example "Size of the text.txt file is 800 bytes and binary file is 800 bytes.".
- Make the Python script executable.

Q4. (25 points) Write a Python script (`answer4_3E.sh`) in `MidtermExam` as described below.

- Use argument parser module to read
  - an output file name, and
  - two folder names from the commandline.
- Make two folders with any names that your code reads as two arguments.
- Create a 2×75 array of ones.
- Write the array into a binary file with the output file name you read as an argument, in the first folder.
- Multiply the both items of each line by five, if the line number is a power of two.
- Write the new array into a binary file with the output file name you read as an argument, in the second folder.
- Make the Python script executable.

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 (`run_all.sh` and `remove.sh`) in `MidtermExam` folder as described below.

- `run_all.sh` to run the scripts, `answer1_3E.sh`, `answer2_3E.sh`, `answer3_3E.py`, and `answer4_3E.py`, and
- `run_all.sh` to print your student id, name, surname and the total points you expect to get from this exam.
- `remove.sh` to remove all the files and folders you made in this exam, **except**
  - `answer1_3E.sh`,
  - `answer2_3E.sh`,
  - `answer3_3E.py`,
  - `answer4_3E.py`,
  - `README.md`,
  - `run_all.sh`, and
  - `remove.sh`.