SOFTWARE ENG. SYSTEM PROGRAMMING 2023-2024 FALL TERM PROJECT

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In this study, you are asked to create an archive program called "tarsau" that works like tar, rar or zip, **but does not compress.** The program will be written in C-language on the Linux (or Unix) operating system and will run from the command line as shown in the figure below.

```
> tarsau —b t1 t2 t3 t4.txt t5.dat —o s1.sau

The files have been merged.

> tarsau —a s1.sau d1

t1, t2, t3, t4.txt t5.dat files opened in the d1 directory.
```

-- tarsau –b :

- Input files can only be text files (ASCII, 1 byte per character). In the example above, t1, t2, t3, t4.txt and t5.dat are all text files.
- The program should only combine text files and convert them into a single text file.
- The format of the output file is given below.
- The name of the archive file must be given after the –o parameter.
- If the archive file name is not given, it should be a.sau by default.
- The total size of input files cannot exceed 200 MBytes.
- The number of input files cannot be more than 32.
- Given an input file with an improper format, for example a t7 binary file: "t7 input file format is incompatible!" must write the message and exit cleanly.

-- tarsau –a :

- It should take at most 2 parameters after -a.
- The first parameter after -a must be the name of the archive file (*.sau). When an inappropriate file name is entered: "Archive file is inappropriate or corrupt!" should write the message.
- The second parameter after -a is the directory name parameter. If the archive file is to be opened to the current directory, it may not be exported.
- The index parameter can be relative or absolute.
- If there is no place in the entered directory name, it is first created and then files are placed in it.
- Any exits should be clean, the program should not crash suddenly.
- Opened files must have the same permissions (read, write, execute permissions) that they had when archiving.

-- sau archive file format:

The archive file consists of two parts: 1) Organization (contents) information, 2) Archived files.

1. **Organization (contents) section:**
- The first 10 bytes hold the numerical size of the first section in ASCII.
- Each subsequent record '|' It is separated by .
- The fields within the record are separated by commas and are: |File name, permissions, size|
- Archive files start immediately after the last recording ends.
2) **Archived files:**
- Archived files are placed one after the other in ASCII without using any delimiters.
- The last character is the end of file.

Notes about the project:

* The project must be uploaded to the system to be compiled with make file.

* The project can be developed as a team of two people.

* A report should be prepared describing the development process of the project, including a description of the code snippets of the application and screen outputs.

* Development of the project:

During the development phase of the project, a member of the project team will create a record for the project on https://github.com/ and the development processes will be carried out through this address. This address will be added to the final report.

 * Uploading to the system: All documents (project codes, report file) included in the assignment content will be uploaded to the system as a single piece after copying and compressing them to a single folder (the name of the folder should be your student number). (b211210095_b211210024.rar/zip)