

# PREPARATORY ASSIGNMENT

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All the codes for the questions can be found in this link - ([Github repo link](#))

## Q1 : Simulate the behaviour of cp command in Linux in C

Check for two errors initially : error in opening the source and the destination files. If we can't open them, then we print an error validation and `return(EXIT_FAILURE)` . Now, if the destination file cannot be modified, we again validate the error and `return(EXIT_FAILURE)` . Now, if there is no error, we copy the contents using the `read()` and `write()` functions in C, through a (configurable) buffer macro of size 2048. In the end we check for errors for closing both the files after opening and modifying them.

Usage : `./mycopyWithC source_file destination_file`

## Extra Credit : Simulate the behaviour of rm command in Linux in C

Check one error : opening the file in the argument. Now, use the `remove()` function in C to remove the file. If the return value of this is `> 0` then we `return(EXIT_SUCCESS)` else `return(EXIT_FAILURE)` ;

Usage : `./rmWithC file_name`

## Q2 : Sort an array of varying number integers in ascending order or descending order

### Extra Credit : Implement the above sorting algorithm using only one function internally

I have done the extra credit and normal question using bubble sort and both using 1 function only. The errors we check for here would be the size and input array size mismatch and the `sort_mode`

So, in these 3 cases, we print the error message and `return(EXIT_FAILURE)` . Now we sort the array using Bubble sort and print the sorted array.

Usage : `./sortWithC size sortmode a[0], a[1] ... a[size-1]`

## Q3 : Sort an array of integers or floating point numbers or characters using function overloading.

I have used function overloading and wrote 3 separate sorting functions for `int`, `float`, `char`. I will take an extra variable as input and then use a switch statement for three cases,

`int, float, char`. Same algorithm as the above question. The same error message is being displayed along with the one extra for the type variable I have used.

```
Usage: ./sortWithFunctionOver size sortmode [0 or 1 or 2] a[0], a[1] ...  
a[size-1]
```

**Q4 : Sort an array of integers or floating point numbers or characters using function templating.**

I have used function templating and wrote a single function, similar to the previous question , I have used the same algorithm to sort again and the switch case for declaring the array type.

```
Usage: ./sortWithFunctionTemp size sortmode [0 or 1 or 2] a[0], a[1] ...  
a[size-1]
```