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Roll no:

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Section:

BSCS-9A

Assignment no 4:

Build Automation (Pre-Processors)

Submitted to:

Dr. Omar Usman Khan

Task 3: Converting to Library

Static Library:

```
my_header_file.hpp - Task3 - Visual Studio Code
                                                                        • my_header_file.hpp X
           1 nclude "my header file.hpp"
                                                                                #ifndef MY HEADER FILE HPP
                                                                                                                                                       #ifndef MY HEADER FILE HPP
                                                                                  #define MY HEADER FILE HPP
                                                                                                                                                        #define MY HEADER FILE HPP
مړ
               id MyClass::myFunction(int x)
                                                                                  #include <iostream>
                                                                                                                                                        #include <iostream>
                  if (x \% 2 == 0) {
                         std::cout << "even" << s
                                                                                  class MyClass {
                                                                                                                                                       class MyClass {
                         std::cout << "odd" << st
                                                                                        void myFunction(int x);
                                                                                                                                                              void myFunction(int x);
                                                                                  #endif
                                                                                                                                                        #endif
                                                                                                                                                                                  🌶 bash-q1 🕂 🗸 📗 🛍 … ∧ 🗴
    • (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/q1$ g++ -c main.cpp -o main.o
• (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/q1$ g++ -c my_header_lib.cpp -o my_header_lib.o
• (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/q1$ ar -cvr libMyHeaderLib.a my_header_lib.o
      a - my_header_lib.o
      (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/q1$
```

Dynamic Library:

```
my_header_file.hpp - Dynammic Library - Visual Studio Code
                                                                                                                                                                                                                   o X
File Edit Selection View Go Run Terminal Help
                                                                              • my_header_file.hpp X
                                                                               G my header file.hpp
                                                                                                                                                      @ my header file.hpp
        @ my header lib.cop
            1 #include "my header file.hpp"
                                                                                    1 #ifndef MY HEADER FILE HPP
                                                                                                                                                          1 #ifndef MY HEADER FILE HPP
                                                                                         #define MY HEADER FILE HPP
                                                                                                                                                                #define MY HEADER FILE HPP
                 void MyClass::myFunction(int x)
                                                                                         #include <iostream>
                                                                                                                                                                #include <iostream>
                        if (x \% 2 == 0) {
                               std::cout << "even" <<
                        } else {
                                                                                         class MyClass {
                                                                                                                                                               class MyClass {
 std::cout << "odd" << s
                                                                                               void myFunction(int x);
                                                                                                                                                                      void myFunction(int x);
        PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
                                                                                                                                                                                            🝞 bash 🕂 🗸 📗 🛍 … 🔨 🗙
      • (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/Dynammic Library$ qcc -shared -Wl,-soname,libMyHeaderLib.so.1 -o libMyHeaderLib.so.1.0
      • (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/Dynammic Library$ ln -sf libMyHéqderLib.so.1.0 libMyHeaderLib.so.

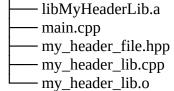
• (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/Dynammic Library$ ln -sf libMyHeaderLib.so.1.0 libMyHeaderLib.so

• (base) dawood@chattha:~/Documents/Advance Programming/Assignment 4/Task3/Dynammic Library$ LD_LIBRARY_PATH="./libMyHeaderLib.so"
```

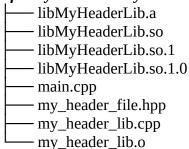
1. What is the directory structure of your code before and after the library creation.

Before library creation: main.cpp my_header_file.hpp my_header_lib.cpp

After library creation:



After dynamic library creation:



2. What are the CVR arguments?

CVR Arguments:

- C: Create a new archive.
- V: Verbosely list files processed.
- R: Replace or insert files into the archive.

3. Run the commands below and report their output:

1. readelf -S my_header_lib.o

Lists the section headers of the object file.

2. readelf -S your_final_file

Lists the section headers of the final executable.