

HW13 - Exceptions [50 pts]

Using HW12:

1. Test the assert macro (both pass and fail); print a corresponding output statement.
2. Add exceptions to the queue template.
 - a. Throw an exception if the capacity is exceeded. Print an appropriate error message in the associated exception handler.
 - b. Throw an exception if your program tries to remove from an empty queue. Print an appropriate error message in the associated exception handler.
 - c. Test both exceptions

For part 2, write two exception classes `ExceptionQueueIsFull`, `ExceptionQueueIsEmpty` to facilitate exception handling. Classes must inherit from `std::exception` and override virtual function `what()` (use `noexcept`). Add chained exception handlers in `main()` to respond to error conditions.

Following an exception, the program should allow one to recover from a mistake without corrupting the contents of the queue.

Use the command script to capture your interaction compiling and running the program, including all operations, as shown below:

CS1C Spring 2023 TTH HW13 50pts Due: Tu 4/25/2023

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ script hw13.scr
```

```
Script started, file is hw13.scr
```

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ date
```

```
...
```

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ ls -l
```

```
...
```

HW13 - Exceptions [50 pts]

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ make all
```

```
...
```

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ ls -l
```

```
...
```

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ ./hw13
```

... // print output from steps 1 and 2 above

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ exit
```

Script done, file is hw13.scr

```
cs1c@cs1c-VirtualBox ~/cs1c/hw/13 $ make tar
```

```
...
```

Submit the tar package file hw13.tar to canvas by Tuesday April 25, 2023.