Starvation-free reader writers problem

This repo contains pseudocode for starvation free reader writer problem implemented for assignment of **CSN-232: Operating Systems**

Documentation

- Global Variables:

```
semaphore accessMutex;        // Initialized to 1
semaphore readersMutex;       // Initialized to 1
semaphore orderMutex;         // Initialized to 1

unsigned int readers = 0;     // Number of readers accessing the resource
```

- Readers algorithm pseudocode:

```
Wait(orderMutex);           // Remember our order of arrival

Wait(readersMutex);         // We will manipulate the readers counter
if (readers == 0)           // If there are currently no readers (we came first)...
  Wait(accessMutex);        // ...requests exclusive access to the resource for readers
readers++;                  // Note that there is now one more reader

Signal(orderMutex);         // Release order of arrival semaphore (we have been served)
Signal(readersMutex);       // We are done accessing the number of readers for now

ReadResource();             // Here the reader can read the resource at will

Wait(readersMutex);         // We will manipulate the readers counter
readers--;                  // We are leaving, there is one less reader
if (readers == 0)           // If there are no more readers currently reading...
  Signal(accessMutex);      // ...release exclusive access to the resource
Signal(readersMutex);       // We are done accessing the number of readers for now
```

- Writers algorithm pseudocode:

```
Wait(orderMutex);           // Remember our order of arrival
Wait(accessMutex);          // Request exclusive access to the resource
Signal(orderMutex);         // Release order of arrival semaphore (we have been served)

WriteResource();            // Here the writer can modify the resource at will

Signal(accessMutex);        // Release exclusive access to the resource
```