ASSIGNMENT 2

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BSCS -4B rEG# 33584

This project implements the following smart pointers:

* Copied pointers
* Owned pointers
* COW with Reference Counting
* COW with Reference linking

**Github**: <https://github.com/sohaibtariq/smart-pointers>

The project contains the following files:

* Copied\_ptr.h
* Copied\_ptr.cpp
* Copied\_string.h
* Copied\_string.cpp

( *The copied\_ptr files contain the implementation of the copied pointer whereas the copied\_string is the implementation of the string that the copied pointer points to.*)

* Owned\_ptr.h
* Owned\_ptr.cpp
* Owned\_string.h
* Owned\_string.cpp

(*The owned\_ptr files contain the implementation of the owned pointer whereas the owned\_string is the implementation of the string that the owned pointer pointer points to.*)

* Refcount.h
* Refcount.cpp
* String\_refcount.h
* String\_refcount.cpp

(*The refcount files contain the implementation of the COW reference counted pointer whereas the string\_refcount is the implementation of the string that the pointer points to.*)

* Reflink\_ptr.h
* Reflink\_ptr.cpp

(*The reflink files contain the implementation of COW with reference linking. The string used in this instance is the owned\_string.*)

**Implemented functions:**

**Pointer classes:**

* Constructors ( no argument, pass string object by reference, pass pointer object by reference, pass character array and length)
* Destructors
* Operator overloading for the member access operator ( -> ) so that the pointer objects can be used like pointers.
* get\_length : get the length of the string
* get\_str: get a reference to the character array

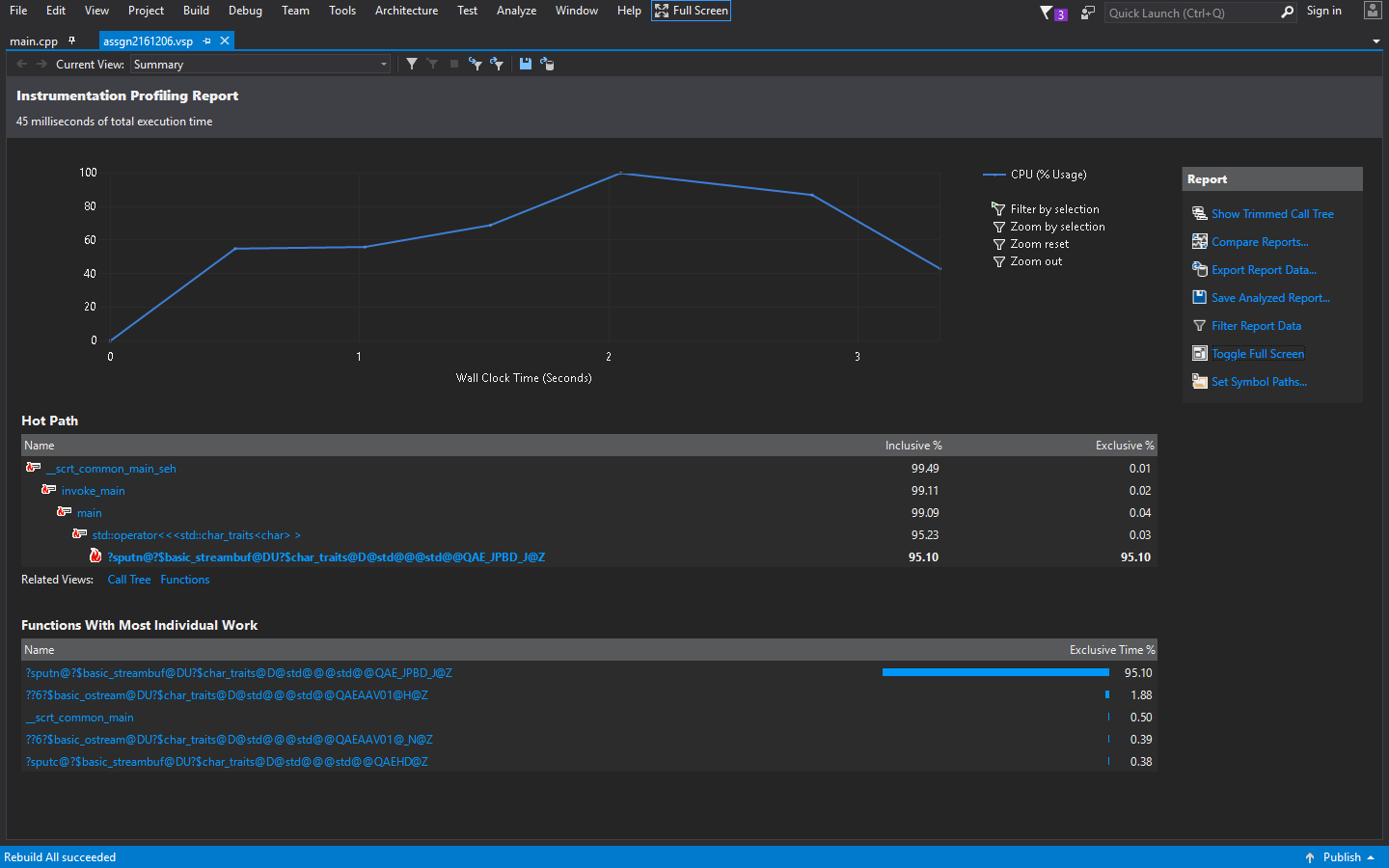
**String classes:**

* Constructors ( no argument, pass string object by reference, pass character and length)
* get\_length : get the length of the string
* get\_str: get a reference to the character array
* ***This list only includes functions that are present in all classes. Functions unique to each class are not mentioned here.***

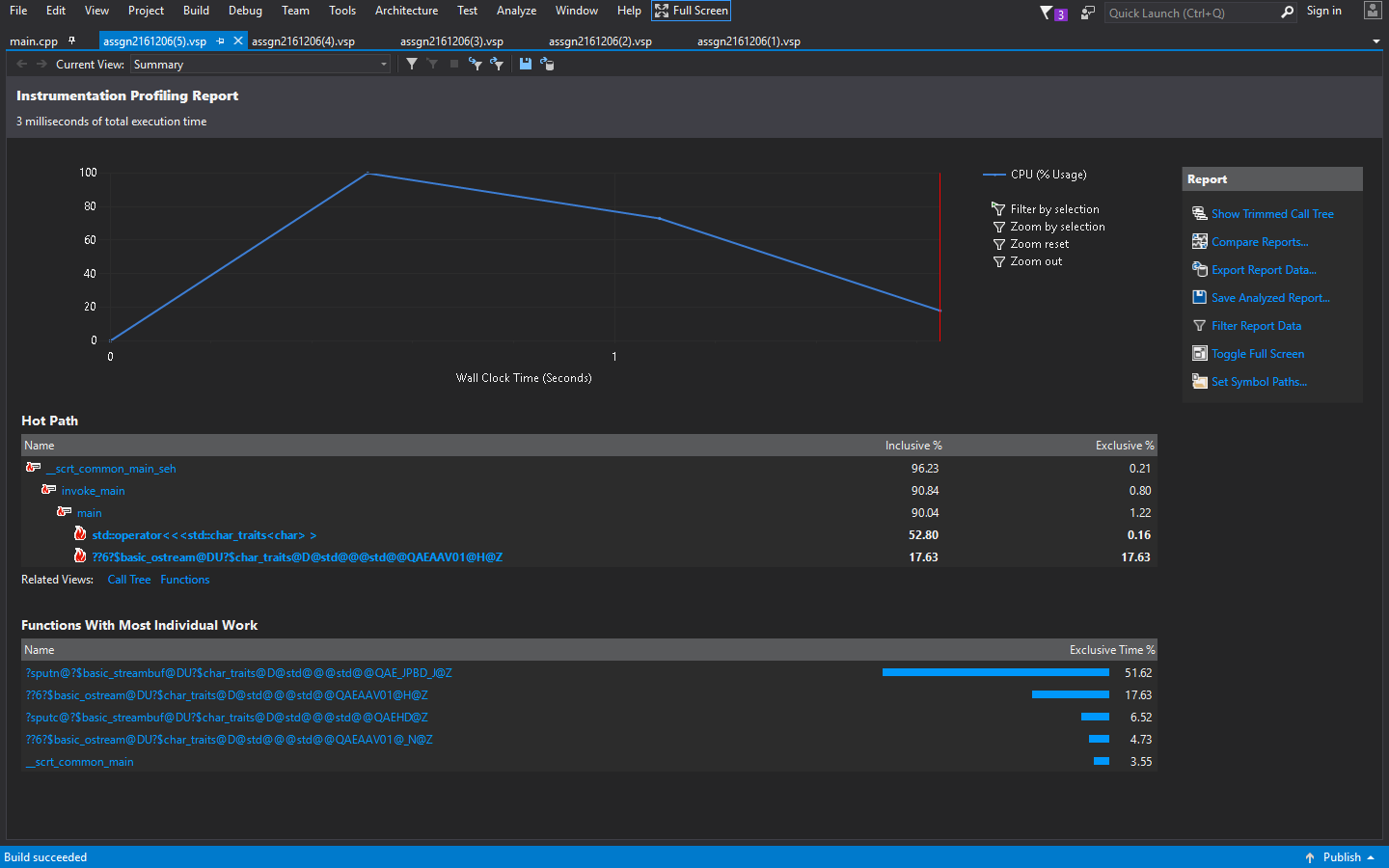
**Profiling:**

***(Profiling has been done for CPU usage only since my Visual studio installation is not able to perform memory profiling for some reason.)***

* CPU usage for large string:



* CPU usage for small string



* CPU usage form medium string:

