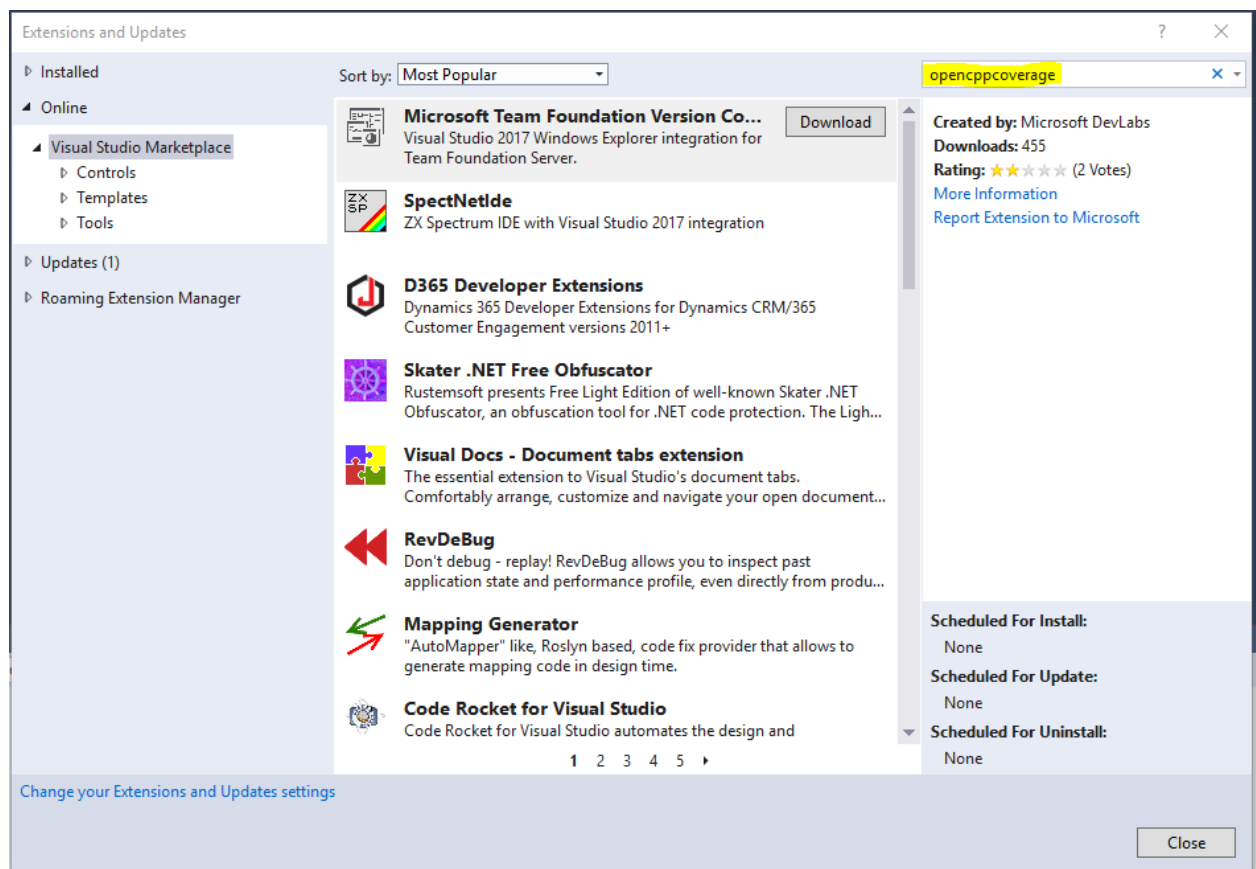


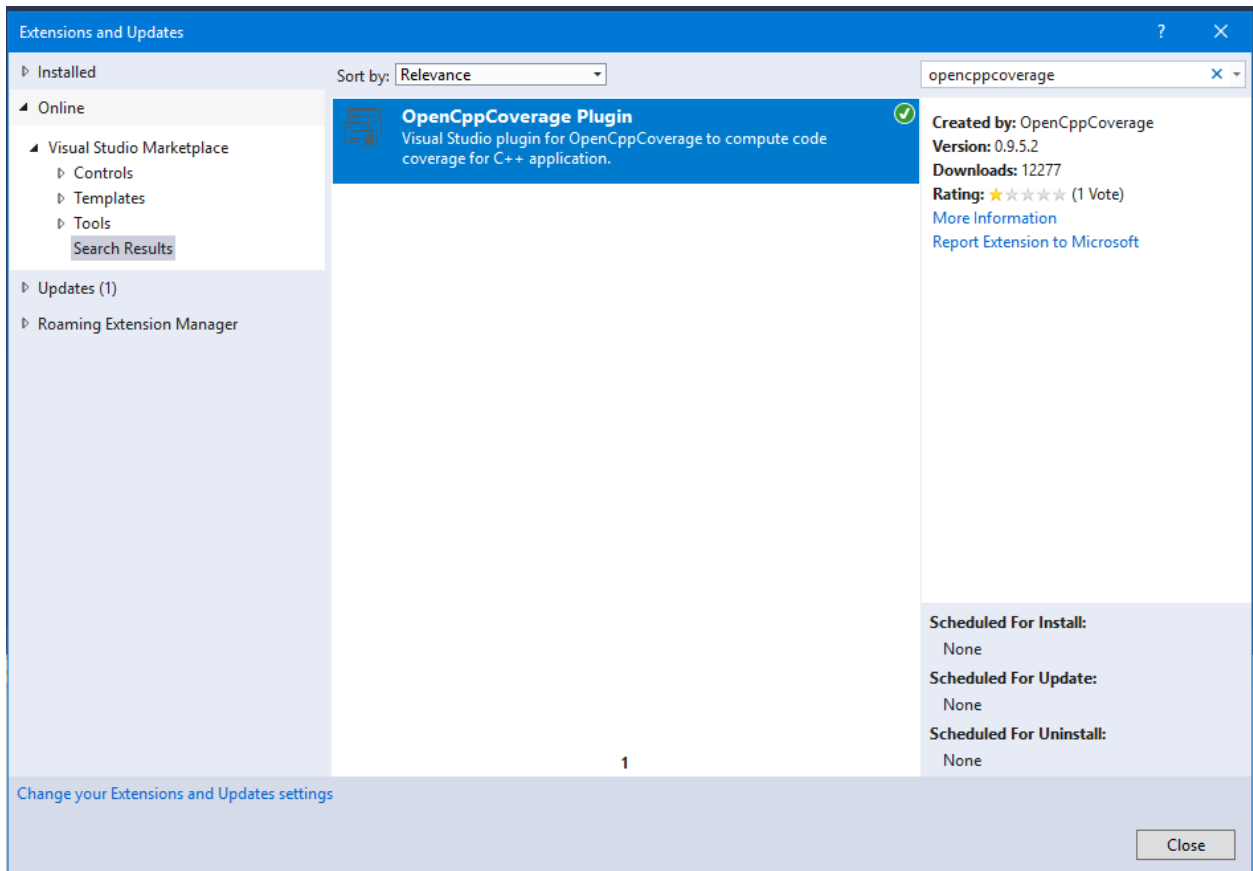
SETTING UP OPENCPPCOVERAGE WITH VISUAL STUDIO

OpenCppCoverage is a tool for verifying unit testing coverage, but it can also be used to count the executed lines in a program for debugging purposes.

1. In Visual Studio, go to **Tools -> Extensions and Updates -> Online -> Visual Studio Marketplace** and search for “opencppcoverage”:



2. You should find the OpenCppCoverage plugin:



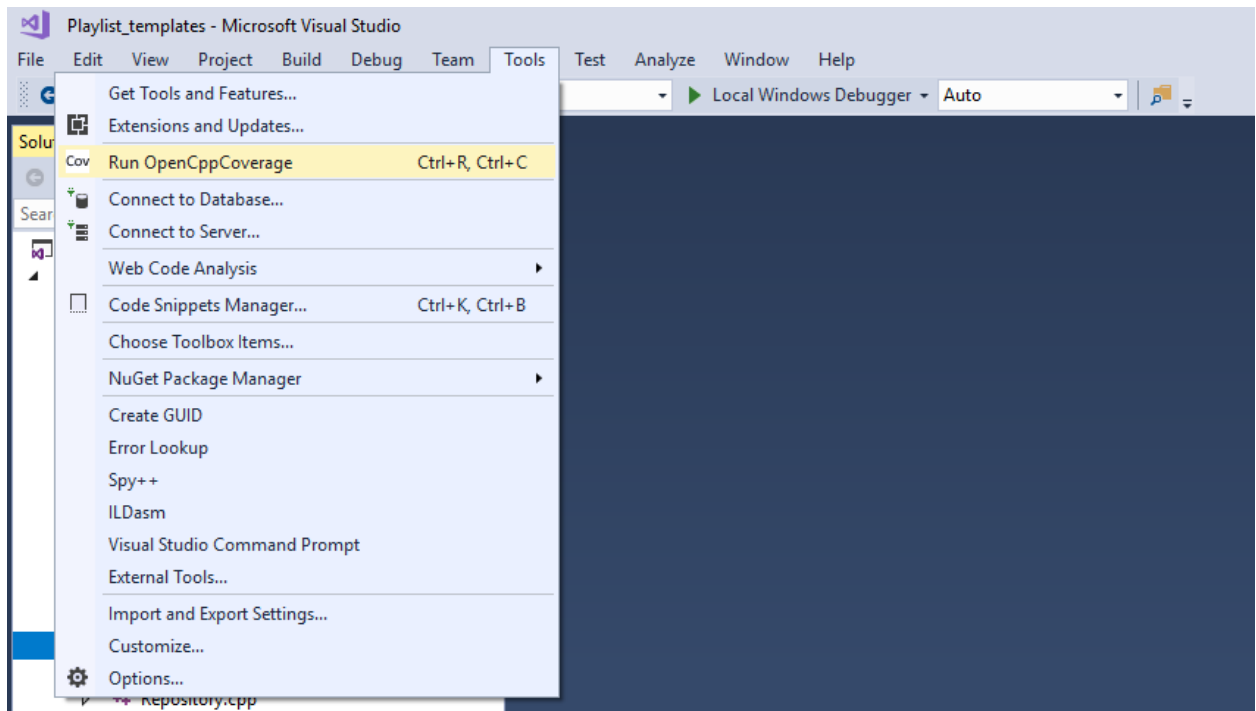
3. Install the plugin. It should take a few seconds (you will see the installation progressing) and the Visual Studio should restart. (In the picture above, there is no button for installation, as I have already installed it.)
4. After the installation is complete and Visual Studio has restarted, open the project you want to check coverage for and make sure that only the tests are run in your main function:

```
int main()
{
    Tests::testAll();

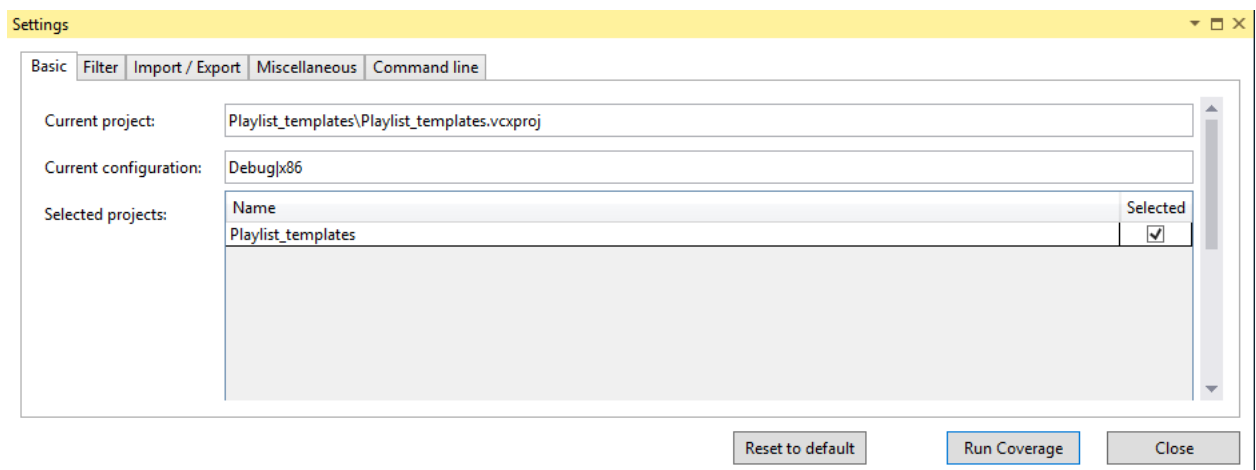
    /*Repository repo{};
    Controller ctrl{ repo };
    UI ui{ ctrl };
    ui.run();*/

    return 0;
}
```

5. Go to **Tools** and you should find the “Run OpenCppCoverage” item:



6. A Settings window should open:



7. Select your project and then choose “Run Coverage”.

8. In your console you should see the output of the coverage program:

```

C:\Users\Iuliana\AppData\Local\Microsoft\VisualStudio\15.0...
[info] Start Program:
Path: "c:\users\iuliana\source\repos\Playlist_templates\Debug\Playlist_templates.exe"
Arguments:
Working directory: "c:\Users\Iuliana\source\repos\Playlist_templates\Playlist_templates\"
Modules: Selected: c:\users\iuliana\source\repos\Playlist_templates\Debug\Playlist_templates.exe Excluded:
Sources: Selected: c:\Users\Iuliana\source\repos\Playlist_templates\Playlist_templates Excluded:
Log Level: Normal
Cover Children: 0
Aggregate by file: 1
Continue after C++ exception: 0
Optimized build support: 0
Export: Binary C:\Users\Iuliana\AppData\Local\Temp\3nsivzkz.ozu
Input coverage:
Unified diff:
Excluded line regular expressions:

[info] Module: C:\Users\Iuliana\source\repos\Playlist_templates\Debug\Playlist_templates.exe is selected because it matches selected pattern: c:\users\iuliana\source\repos\Playlist_templates\Debug\Playlist_templates.exe
[info] Module: C:\Windows\SysWOW64\ntdll.dll is skipped because it matches no selected patterns

```

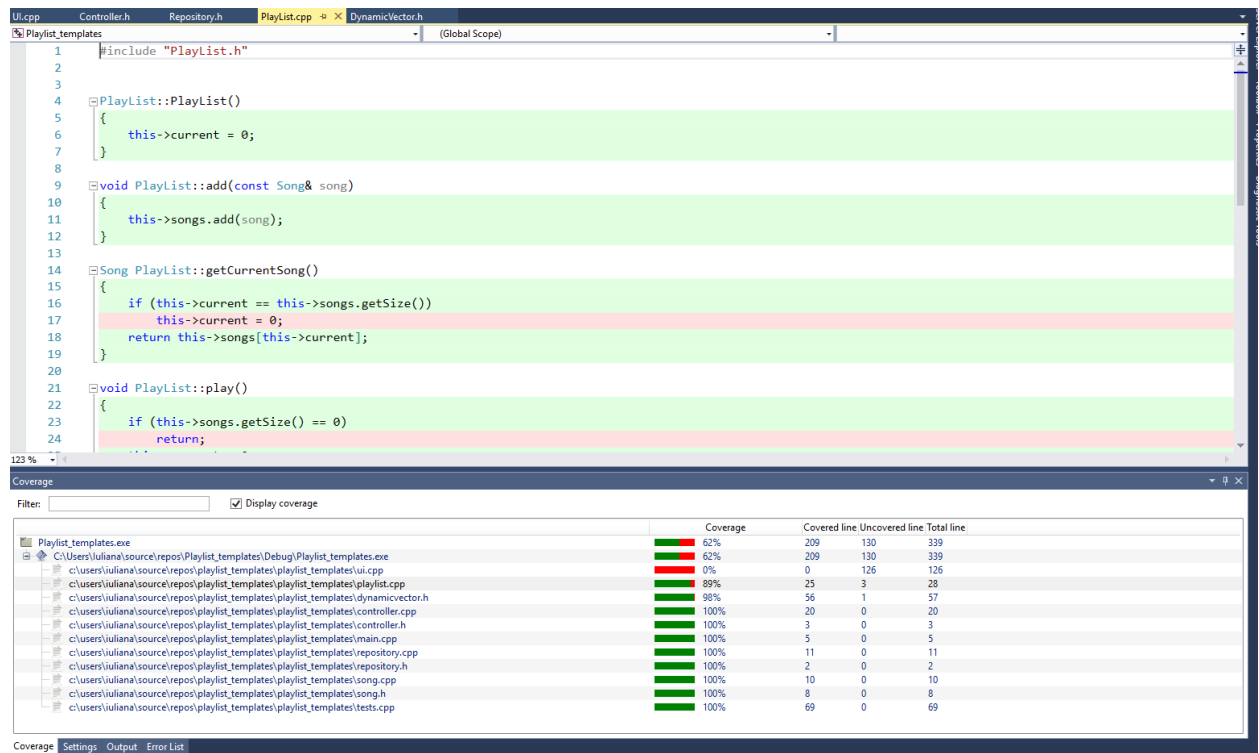
- When pressing a key, the console is closed and you should find a new window "Coverage", such as the one below:

Coverage				
Filter: <input type="text"/>		<input checked="" type="checkbox"/> Display coverage		
	Coverage	Covered line	Uncovered line	Total line
Playlist_templates.exe	<div><div></div></div> 62%	209	130	339
C:\Users\Iuliana\source\repos\Playlist_templates\Debug\Playlist_templates.exe	<div><div></div></div> 62%	209	130	339

- Expand the ".exe" item to see coverage for each individual file:

Coverage				
Filter: <input type="text"/>		<input checked="" type="checkbox"/> Display coverage		
	Coverage	Covered line	Uncovered line	Total line
Playlist_templates.exe	<div><div></div></div> 62%	209	130	339
C:\Users\Iuliana\source\repos\Playlist_templates\Debug\Playlist_templates.exe	<div><div></div></div> 62%	209	130	339
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\ui.cpp	<div><div></div></div> 0%	0	126	126
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\playlist.cpp	<div><div></div></div> 89%	25	3	28
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\dynamicvector.h	<div><div></div></div> 98%	56	1	57
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\controller.cpp	<div><div></div></div> 100%	20	0	20
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\controller.h	<div><div></div></div> 100%	3	0	3
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\main.cpp	<div><div></div></div> 100%	5	0	5
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\repository.cpp	<div><div></div></div> 100%	11	0	11
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\repository.h	<div><div></div></div> 100%	2	0	2
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\song.cpp	<div><div></div></div> 100%	10	0	10
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\song.h	<div><div></div></div> 100%	8	0	8
c:\users\iuliana\source\repos\playlist_templates\playlist_templates\tests.cpp	<div><div></div></div> 100%	69	0	69

- When clicking a file, it will open and the lines covered/not covered by tests will be shown in green/red:



Make sure you have at least 98% coverage for all your modules, except the UI. We need at least 99% coverage in our (rather simple) applications, as less than 98% would mean that a certain line of code has never been run (e.g. a one-line function, a special case in a function). In real applications, code coverage less than 98% is accepted.