A. A point-form list of the steps required to create a new project in Visual Studio, add new files, compile and run a command line program.

New Project

- File
- New
- Project

Add New Files

- In the solution explorer on the right hand side.
- Right click on the heading of type of file you would like to add.
- Select “Add”
- Select “New Item”

Compile and Run Command Line Program

- Add a new source code file.
- Add the following code:

```
int main()

{ return 0; }
```

- Click the debug menu.
- Click start without debugging.

B. A point-form list of the steps required to create a break-point location in the program, and run the program in using Visual Studio’s Integrated debugging system so that program execution stops at the nominated point.

- On the left hand side of the editor, there will be a set of line numbers.
- To the left of the line numbers, there is a slight colour change with runs vertically with the numbers.
- Click in this section and a red filled circle will appear. This has set a break point in the code.
- In order to make the program stop at this line, ensure that you run with debugging.

C. Note how to inspect the value of variables during debugging

- Debug a program until it reaches a breakpoint.
- In the bottom left hand corner of the screen, there should be a window called “Autos”. If there isn’t, Press Ctrl+Alt+V then A. To enable this window.
- You can now see the value of the variables in which are in scope.

Extensions

Advanced Debugging

Step Over

Execute the current line of code and move into the next line on the same level in the code hierarchy. For example, stepping over a function call will execute the function and then stop at the next line of code.

Step Into

Execute the current line of code by moving into the next line of code that is lower in the code hierarchy. For example, stepping into a function call will stop the debugger at the first line of code in the function.

Step Out

Execute the rest of the code on this level of the code hierarchy and then stop at the next line of code. For example, stepping out of a function call will stop the debugger at the line of code that triggered the function call.

Restart

Restart will restart the program.

Continue

Execute continuously until the next breakpoint is reached, then stop.

Watch Variables

While in the debugger, right click on a variable in the source code. Click "Watch". This will allow you to watch the variable even when it is out of scope.

Change Execution Order

While the debugger is stopped, a yellow arrow will appear at the line where the debugger is currently executing. To change the execution order, this arrow can be dragged to execute a different line of code next.