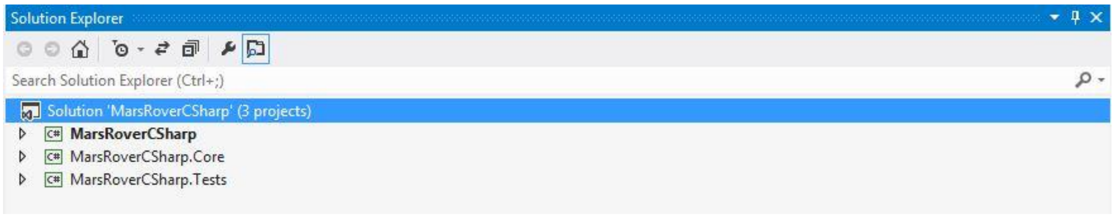
Overview

The MarsRoverCSharp folder contain 3 separate projects. (Shown below in Figure 1)

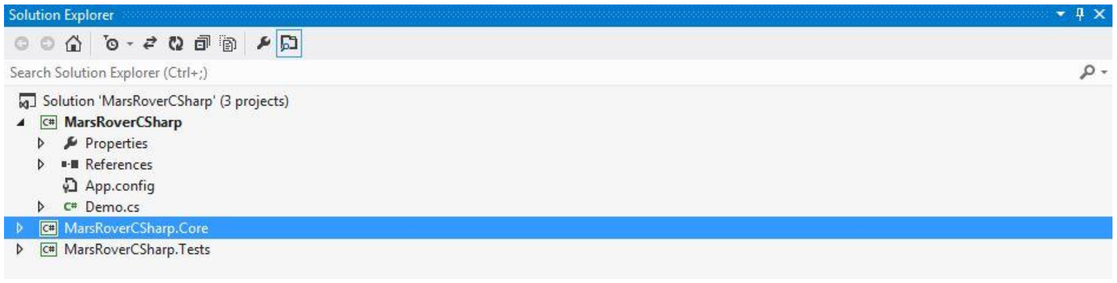


```
Solution 'MarsRoverCSharp' (3 projects)
  MarsRoverCSharp
  MarsRoverCSharp.Core
  MarsRoverCSharp.Tests
```

Figure 1: Shows the three different projects that make up the solution.

MarsRoverCSharp (Shown below in figure 2)

- This project allows the user to run and test the program.
- Demo.cs is the main access point to the program.

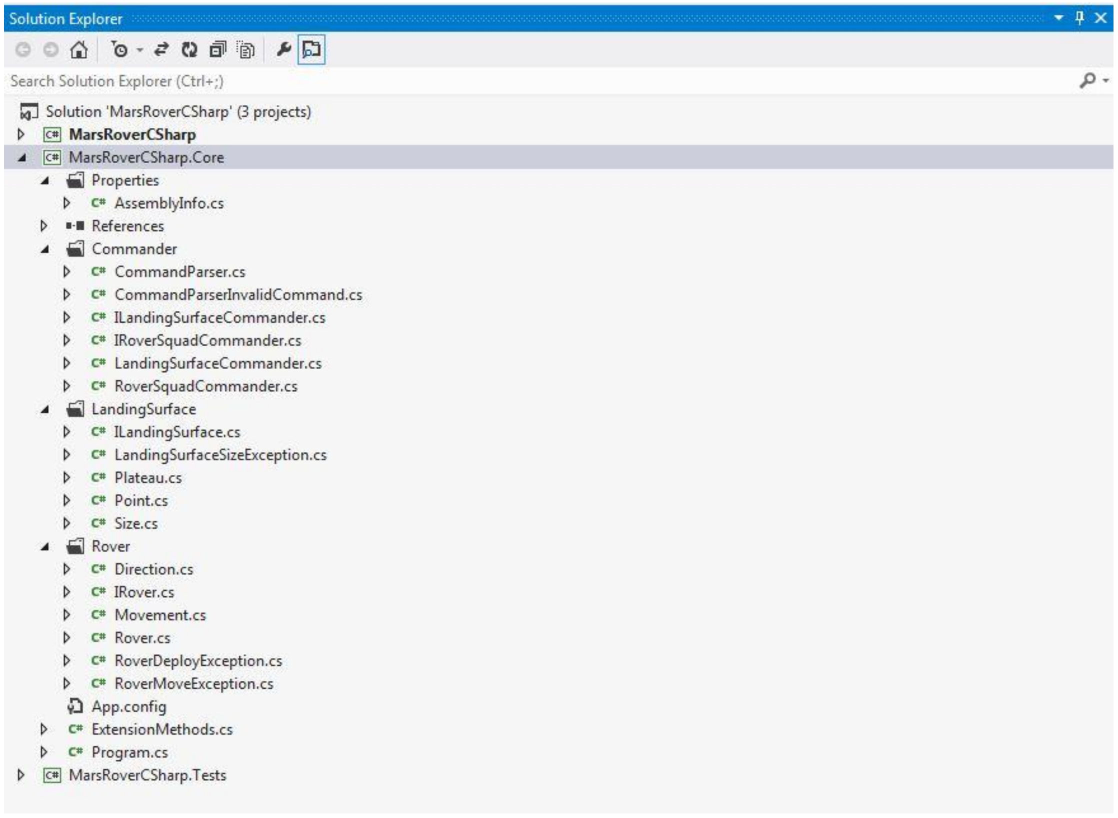


```
Solution 'MarsRoverCSharp' (3 projects)
  MarsRoverCSharp
    Properties
    References
    App.config
    Demo.cs
  MarsRoverCSharp.Core
  MarsRoverCSharp.Tests
```

Figure 2: Shows the Structure of the MarsRoverCSharp folder

MarsRoverCSharp.Core (Shown below in figure 3)

- Contains all the necessary code and logic for the Landing surface, Rover and Commander.

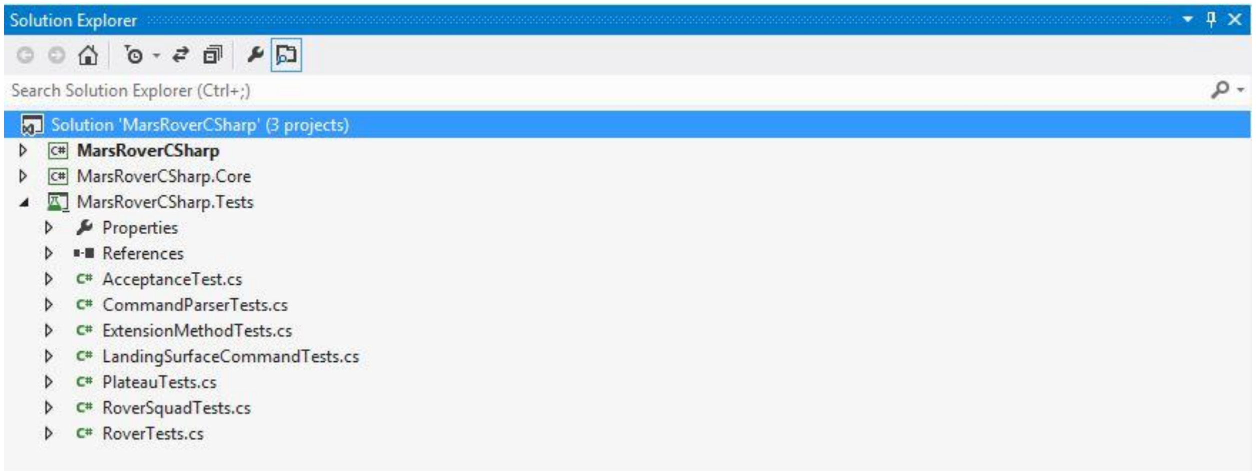


```
Solution 'MarsRoverCSharp' (3 projects)
  MarsRoverCSharp
  MarsRoverCSharp.Core
    Properties
      AssemblyInfo.cs
    References
    Commander
      CommandParser.cs
      CommandParserInvalidCommand.cs
      ILandingSurfaceCommander.cs
      IRoverSquadCommander.cs
      LandingSurfaceCommander.cs
      RoverSquadCommander.cs
    LandingSurface
      ILandingSurface.cs
      LandingSurfaceSizeException.cs
      Plateau.cs
      Point.cs
      Size.cs
    Rover
      Direction.cs
      IRover.cs
      Movement.cs
      Rover.cs
      RoverDeployException.cs
      RoverMoveException.cs
    App.config
    ExtensionMethods.cs
    Program.cs
  MarsRoverCSharp.Tests
```

Figure 3: Shows the structure of the MarsRoverCSharp.Core folder.

MarsRoverCSharp.Tests (Shown below in figure 4)

- Contains unit tests for the main pieces of code contained in MarsRoverCSharp.Core.
- These tests can be run inside the Visual Studio Test Explorer.



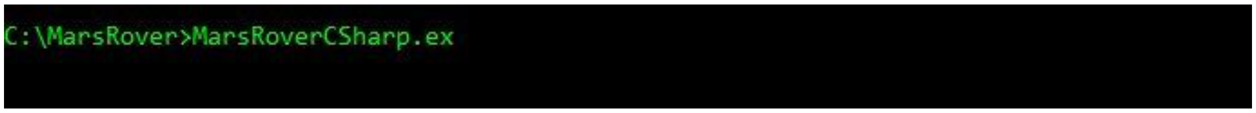
```
Solution 'MarsRoverCSharp' (3 projects)
  MarsRoverCSharp
  MarsRoverCSharp.Core
  MarsRoverCSharp.Tests
    Properties
    References
    AcceptanceTest.cs
    CommandParserTests.cs
    ExtensionMethodTests.cs
    LandingSurfaceCommandTests.cs
    PlateauTests.cs
    RoverSquadTests.cs
    RoverTests.cs
```

Figure 4: Shows the structure of the MarsRoverCSharp.Tests folder.

How to run

To run the mars rover project, the project must first be built.
This can be done by opening the MarsRoverCSharp.sln in Visual Studio and Clicking *"Build Solution"* from the *"Build"* Menu.

Once the project is built, navigate to the directory that contains the MarsRoverCSharp.exe and execute it from the command line by entering:
> *MarsRoverCSharp.exe*

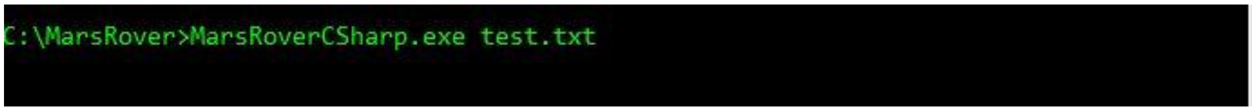


```
C:\MarsRover>MarsRoverCSharp.ex
```

Figure 5: Shows how to execute the program.

NOTE: *The Provided solution also contains a "test.txt" in the debug folder of the MarsRoverCSharp project. This file contains the program input specified by the problem statement.*

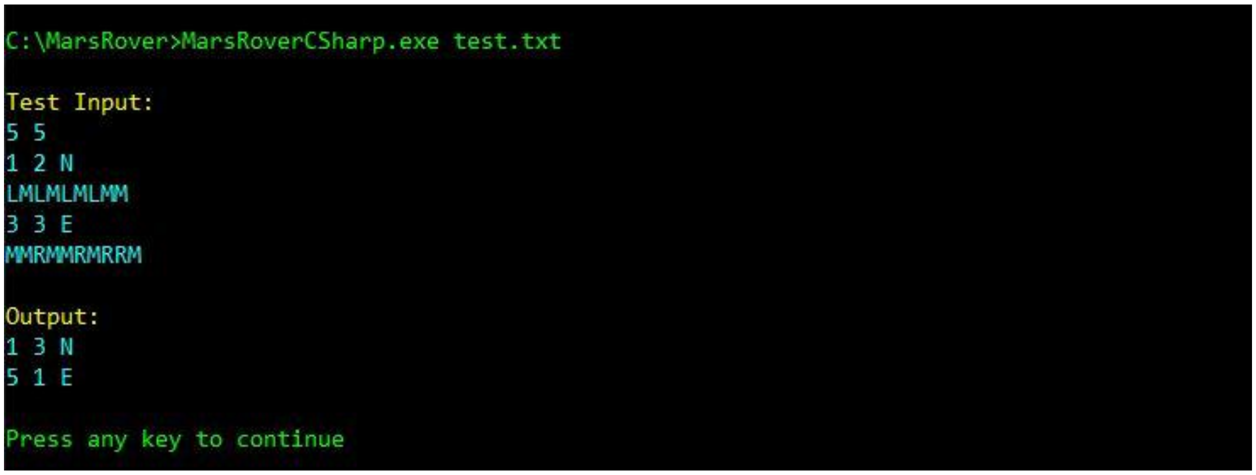
The program can also be run by passing in a file name from the command line.



```
C:\MarsRover>MarsRoverCSharp.exe test.txt
```

Figure 6: Shows how to execute the program with a file passed in from the command line.

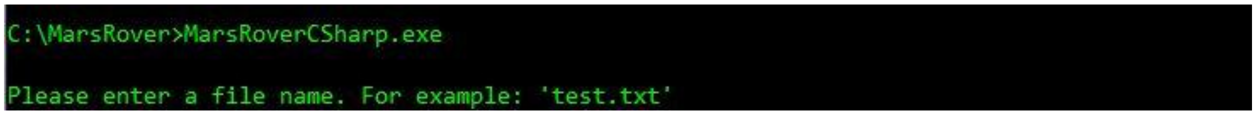
If the program is executed with the provided *"text.txt"* file, the following will be output to the screen once the program is executed.



```
C:\MarsRover>MarsRoverCSharp.exe test.txt

Test Input:
5 5
1 2 N
LMLMLMLMM
3 3 E
MMRMMRMRRM

Output:
1 3 N
5 1 E

Press any key to continue
```

Figure 7: Shows the output of the program after it has been executed with the provided test input.

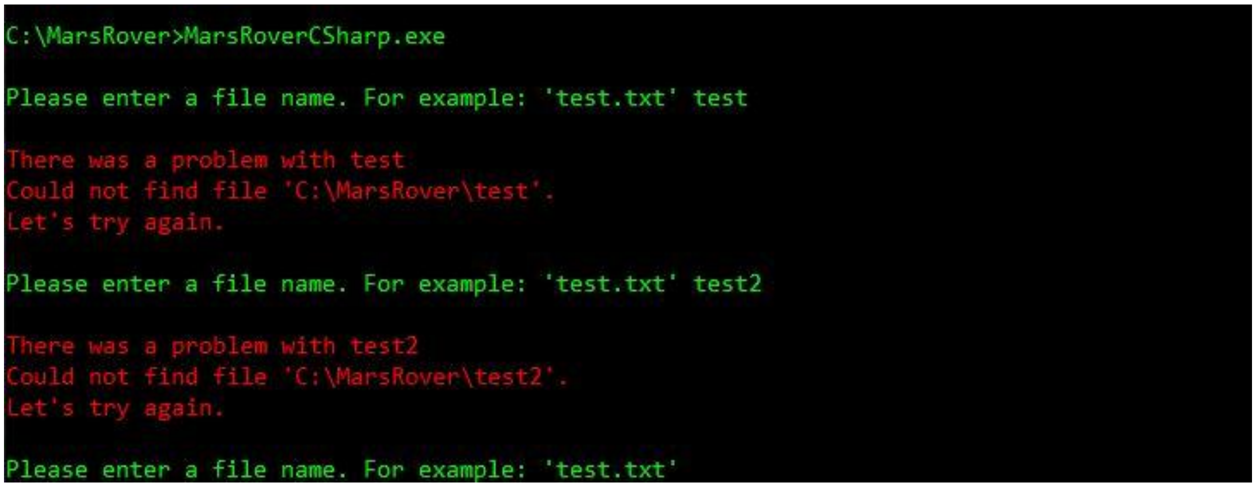
If no file is specified from the command line before execution, the user will be asked to provide a filename.



```
C:\MarsRover>MarsRoverCSharp.exe

Please enter a file name. For example: 'test.txt'
```

Figure 8: Shows the user being prompted for a filename.

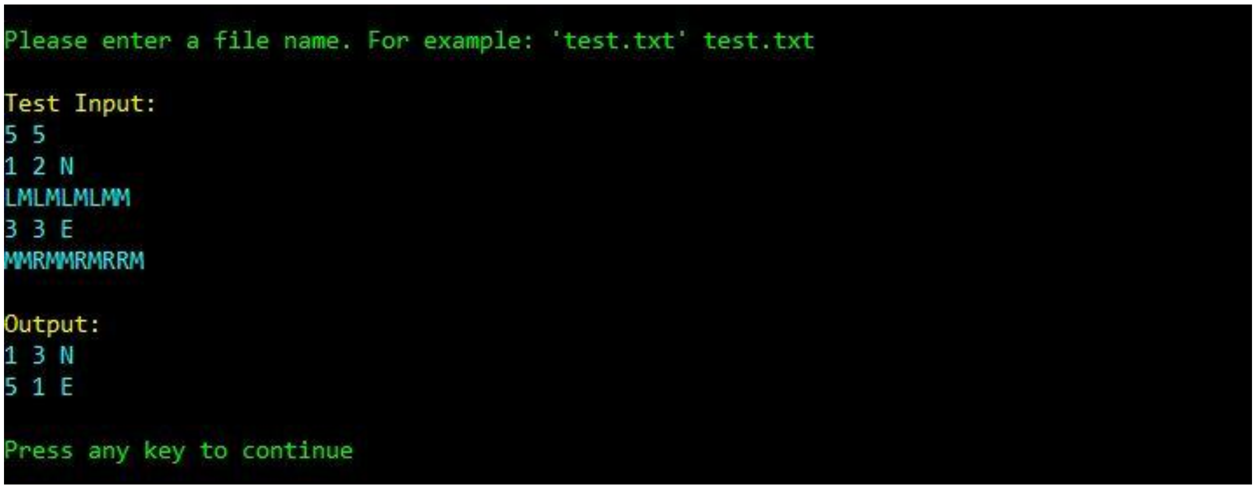
If the user enters an invalid filename, a message indicating this will be displayed to the user. This message will be displayed to the user until a valid filename has been given.



```
C:\MarsRover>MarsRoverCSharp.exe

Please enter a file name. For example: 'test.txt' test

There was a problem with test
Could not find file 'C:\MarsRover\test'.
Let's try again.

Please enter a file name. For example: 'test.txt' test2

There was a problem with test2
Could not find file 'C:\MarsRover\test2'.
Let's try again.

Please enter a file name. For example: 'test.txt'
```

Figure 9: Shows the error message output when the user gives an invalid filename.

Once the user gives a valid filename, the program will be executed and the output will be displayed to the user.



```
Please enter a file name. For example: 'test.txt' test.txt

Test Input:
5 5
1 2 N
LMLMLMLMM
3 3 E
MMRMMRMRRM

Output:
1 3 N
5 1 E

Press any key to continue
```

Figure 10: Shows the program output when user gives a valid filename.

NOTE: The input file given to this program must match the input given in the problem statement. Otherwise, unexpected behavior will occur.