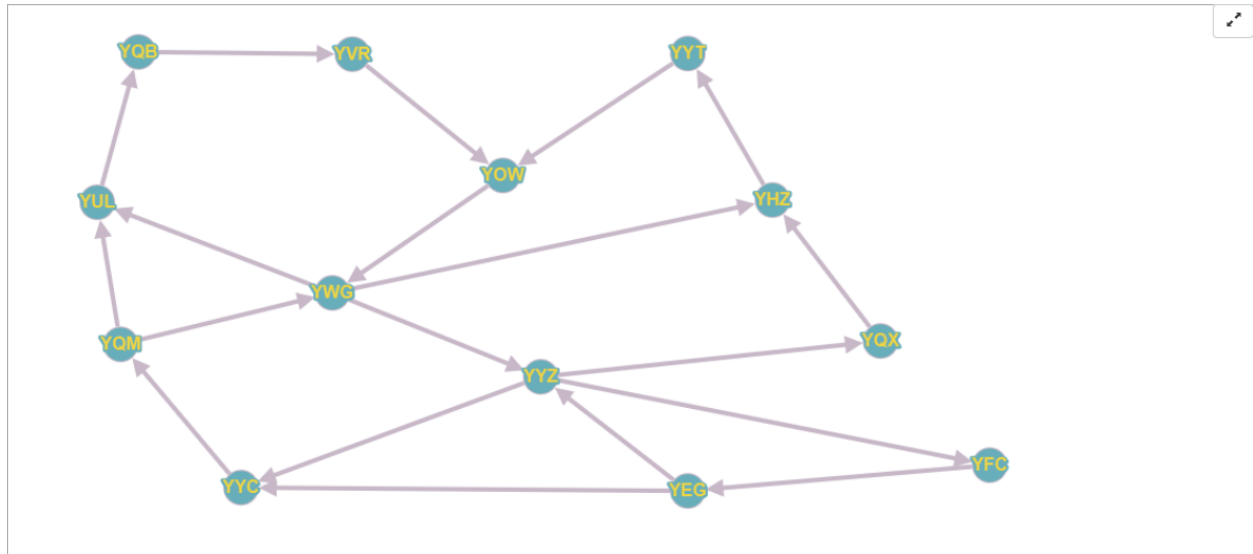


COIS 3020H - Assignment 1

Testing document

Route Map



AirportNode Methods Testing:

AddDestination() Test: To check if AddDestination successfully added airports to an origin airport destination list.

```
//Adds the airports destinations
airportNode[0].AddDestination(airportNode[5]);
airportNode[1].AddDestination(airportNode[0]);
airportNode[1].AddDestination(airportNode[10]);
airportNode[2].AddDestination(airportNode[1]);
airportNode[3].AddDestination(airportNode[4]);
airportNode[4].AddDestination(airportNode[9]);
airportNode[5].AddDestination(airportNode[6]);
airportNode[5].AddDestination(airportNode[12]);
airportNode[6].AddDestination(airportNode[8]);
airportNode[7].AddDestination(airportNode[12]);
airportNode[8].AddDestination(airportNode[11]);
airportNode[9].AddDestination(airportNode[7]);
airportNode[10].AddDestination(airportNode[3]);
airportNode[10].AddDestination(airportNode[2]);
airportNode[10].AddDestination(airportNode[0]);
airportNode[11].AddDestination(airportNode[7]);
airportNode[12].AddDestination(airportNode[6]);
airportNode[12].AddDestination(airportNode[4]);
airportNode[12].AddDestination(airportNode[10]);
```

Destination List for airport YYZ - YQX, YFC, YYC

10	Code	{Assignment_1.AirportNode}	View
	Destinations	Count = 3	
0	Code	{Assignment_1.AirportNode}	View
	Destinations	Count = 1	
	Name	"Gander International Airport "	View
	code	"YQX"	View
	destination	Count = 1	
	name	"Gander International Airport "	View
1	Code	{Assignment_1.AirportNode}	View
	Destinations	Count = 1	
	Name	"Fredericton International Airport"	View
	code	"YFC"	View
	destination	Count = 1	
	name	"Fredericton International Airport"	View
2	Code	{Assignment_1.AirportNode}	View
	Destinations	Count = 1	
	Name	"Calgary International Airport "	View
	code	"YYC"	View
	destination	Count = 1	

RemoveDestination() Test: Test to see if we can successfully remove an airport from another airport's destination list.

```
//Test for remove destination  
airportNode[10].RemoveDestination(airportNode[0]);
```

Removing airport YYC from YYZ's destination list

Name	Value	Type
Code	"YYZ"	string
Destinations	Count = 2	System.Collections.Generic.List`1[System.Collections.Generic.IAirportNode]
0	{Assignment_1.AirportNode}	Assignment_1.AirportNode
	Destinations	Count = 1
	Name	"Gander International Airport "
	code	"YQX"
	destination	Count = 1
	name	"Gander International Airport "
1	{Assignment_1.AirportNode}	Assignment_1.AirportNode
	Code	"YFC"
	Destinations	Count = 1
	Name	"Fredericton International Airport"
	code	"YFC"
	destination	Count = 1
	name	"Fredericton International Airport"
Raw View		

ToString() Test: Print out information for Airport YYZ

```
//Test for To string  
Console.WriteLine(airportNode[10].ToString());
```

Output:

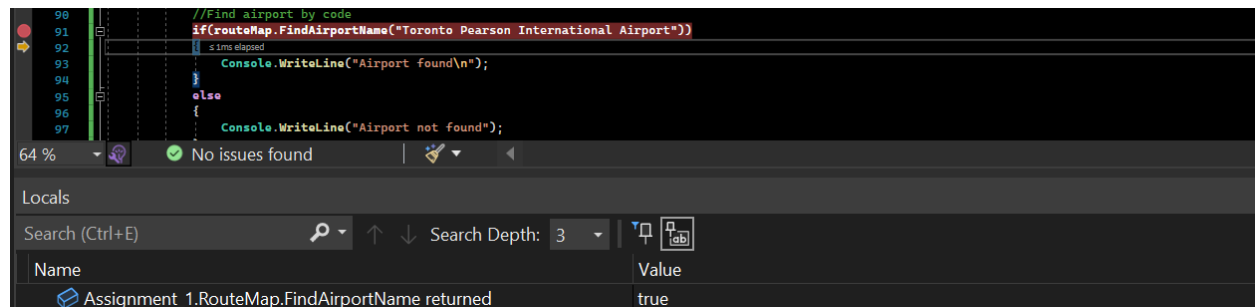
```
Microsoft Visual Studio Debug Console  
Airport: Toronto Pearson International Airport ---- Code: YYZ  
Destinations:  
YQX  
YFC  
YYC
```

RouteMap Methods Testing:

FindAirport(string name) Test: Test to find an airport by its name in the route list

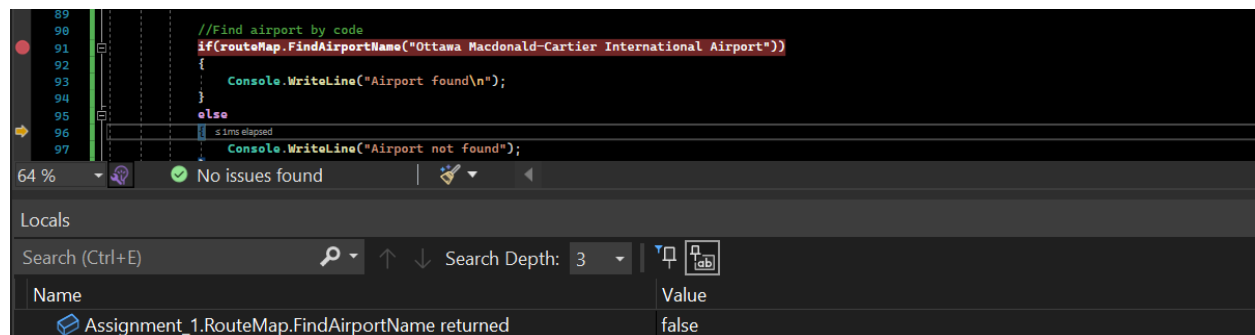
Returns true if found, false if not found.

Case1: Airport is in the route list



Airport found

Case 2: Airport is not in the route list

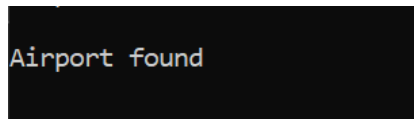
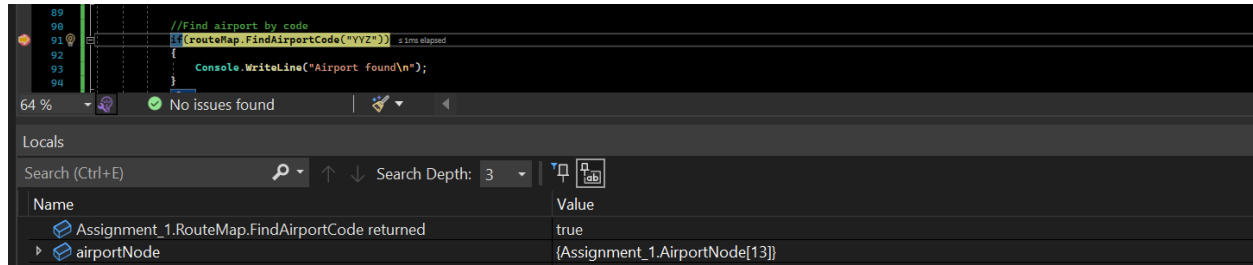


Airport not found

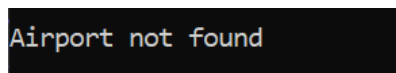
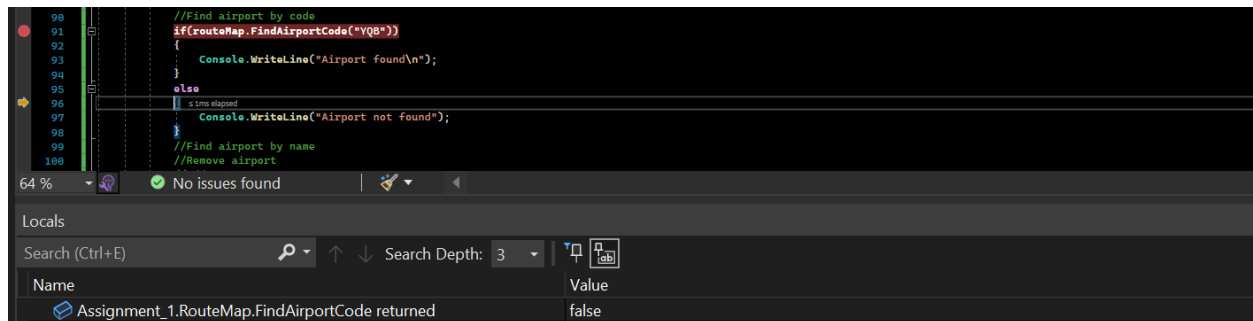
FindAirport(string code) Test: Test to find an airport by its code in the route list

Returns true if found, false if not found.

Case 1: Airport is in the route list



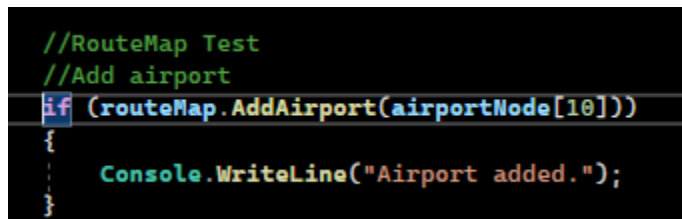
Case 2: Airport is not in the route list



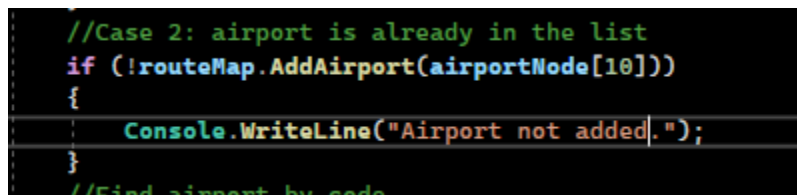
AddAirport(AirportNode a) Test: Test to add an airport to the route list.

Returns true if found, false if not found.

Case 1: airport is not in the list



Case 2: Airport is already in the list:



Results:

```
C:\Users\cmuon\OneDrive\Desktop\COIS 3020\Assign  
Airport added.  
Airport not added.
```

RemoveAirport(AirportNode a) Test:

Returns true if found, false if not found.

Case 1: Airport is in the route and has been successfully removed.

The screenshot shows a C# code file with the following logic: `//Remove airport`, `if(routeMap.RemoveAirport(airportNode[10]))`, `{ Console.WriteLine("successfully removed: {0}", airportNode[10].Name); }`, `else { Console.WriteLine("Could not remove Airport: {0}", airportNode[10].Name); }`. The execution is at line 102. The Locals window shows: `Assignment_1.RouteMap.RemoveAirport returned` is `true`, `airportNode` is `{Assignment_1.AirportNode[13]}`, `routeMap` is `{Assignment_1.RouteMap}`, `Airports` is `Count = 13`, and `i` is `13`.

```
successfully removed: Toronto Pearson International Airport
```

Case 2: Airport is not in the route list or was not removed

The screenshot shows the same code as Case 1 but with `airportNode[11]` instead of `airportNode[10]`. The execution is at line 106. The Locals window shows: `Assignment_1.RouteMap.RemoveAirport returned` is `false`, `airportNode` is `{Assignment_1.AirportNode[13]}`, `routeMap` is `{Assignment_1.RouteMap}`, `Airports` is `Count = 13`, and `i` is `13`.

```
Could not remove Airport: Vancouver International Airport
```

AddRoute(AirportNode origin, AirportNode dest) Test: Adds all airports that can be used to get from origin to dest to the route list

From origin YWG to dest YYT

Possible routes:

YWG → YUL → YQB → YVR → YOW → YWG → YHZ → YYT

YWG → YHZ → YYT

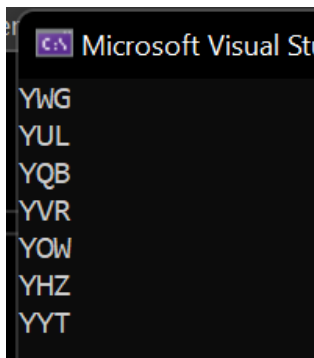
YWG → YYZ → YQX → YHZ → YYT

YWG → YFC → YEG → YYC → YQM → YWG → YYZ → YQX → YHZ → YYT

YWG → YFC → YEG → YYC → YQM → YWG → YHZ → YYT

```
//Add route
routeMap.AddRoute(airportNode[12], airportNode[9]);
foreach(AirportNode port in routeMap.Airports)
{
    Console.WriteLine(port.Code);
}
//Remove route
```

Returns a list of possible paths from origin to dest



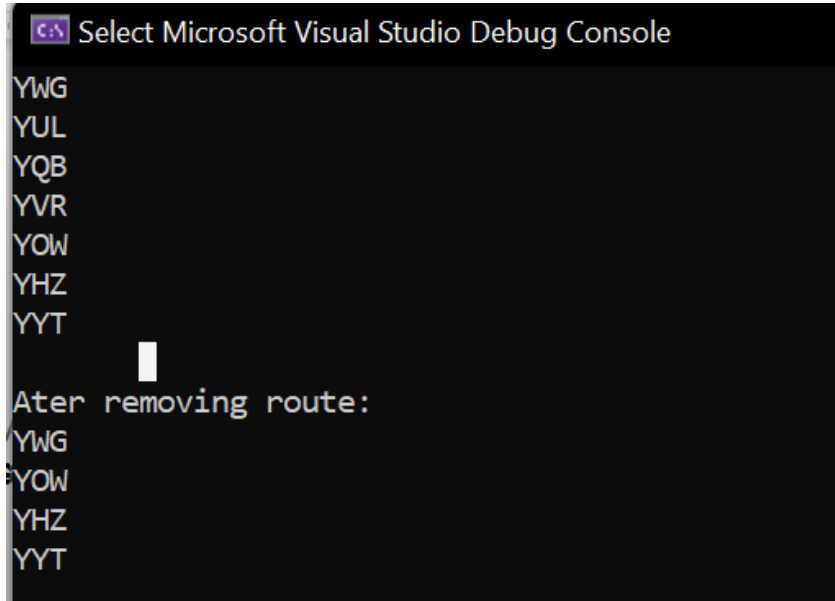
Microsoft Visual Studio

- YWG
- YUL
- YQB
- YVR
- YOW
- YHZ
- YYT

RemoveRoute (AirportNode origin, AirportNode dest) Test:

After adding the route from **origin YWG to dest YYT**, removing a route within this route, from **origin YUL to dest YOW**

YUL → YQB → YVR



```
Select Microsoft Visual Studio Debug Console

YWG
YUL
YQB
YVR
YOW
YHZ
YYT

After removing route:
YWG
YOW
YHZ
YYT
```

FastestRoute (AirportNode origin, AirportNode dest) Test:

YWG → YHZ → YYT