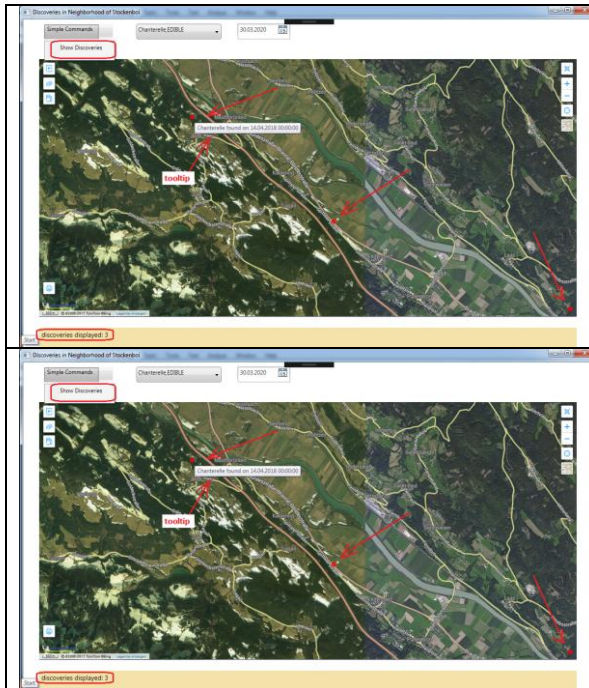## Theme

To save life of mushroom – hunters an appropriate application is needed.

Features

storing spatial data in MS SQL; drawing primitive graphics in WPF

User's View

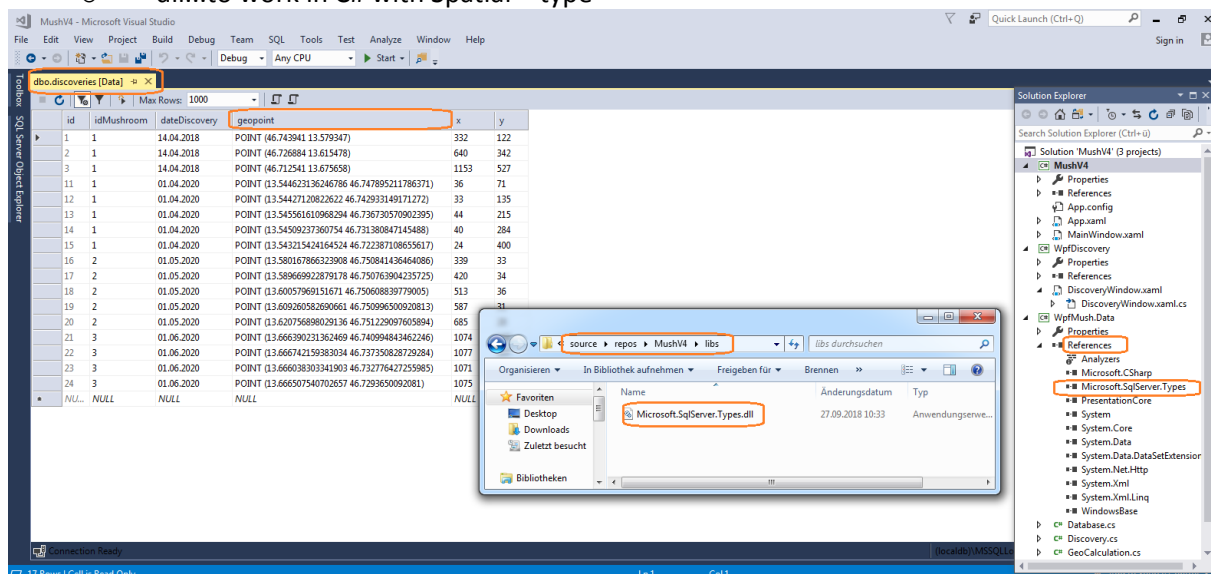|	
	show discoveries: - read from database - shows all discoveries in map - if mouse over point ➔ tooltip gives details
	add discoveries with left mouse - store it in database - with "Show Discoveries" also the newly added discoveries should be shown

Developer's Hint

a) use additional files

- o   sql...change of table-structure *discoveries*: spatial-type
- o   dll...to work in C# with Spatial – type

b) see 2ⁿᵈ document "spatial.pdf"

c) conversion to longitude/latitude

```csharp
public class GeoCalculation
{
    /**
     * constant values concerning map
     **/
    static private readonly long WIDTH = 1167;              //pixel of map
    static private readonly long HEIGHT = 543;              //pixel of map
    static private readonly double MIN_LONGITUDE = 13.5404; //min. longitude of map
    static private readonly double MAX_LONGITUDE = 13.6773; //max. longitude of map
    static private readonly double MIN_LATITUDE = 46.7113;  //min. latitude of map
    static private readonly double MAX_LATITUDE = 46.7534;  //max. latitude of map

    /**
     * calculate appropriate longitude of given x-value
     **/
    1 reference
    static public double GetLongitude(int x)
    {
        return MIN_LONGITUDE + ((double)x / WIDTH) * (MAX_LONGITUDE - MIN_LONGITUDE);
    }
    /**
     * calculate appropriate latitude of given y-value; attention: latitude increases from south to north
     **/
    1 reference
    static public double GetLatitude(int y)
    {
        return MAX_LATITUDE - ((double)y / HEIGHT) * (MAX_LATITUDE - MIN_LATITUDE);
    }
}
```

**a little bit tricky;
if you do not cast to double
then x=int AND width=int => result = int
=> result is mostly 0!**