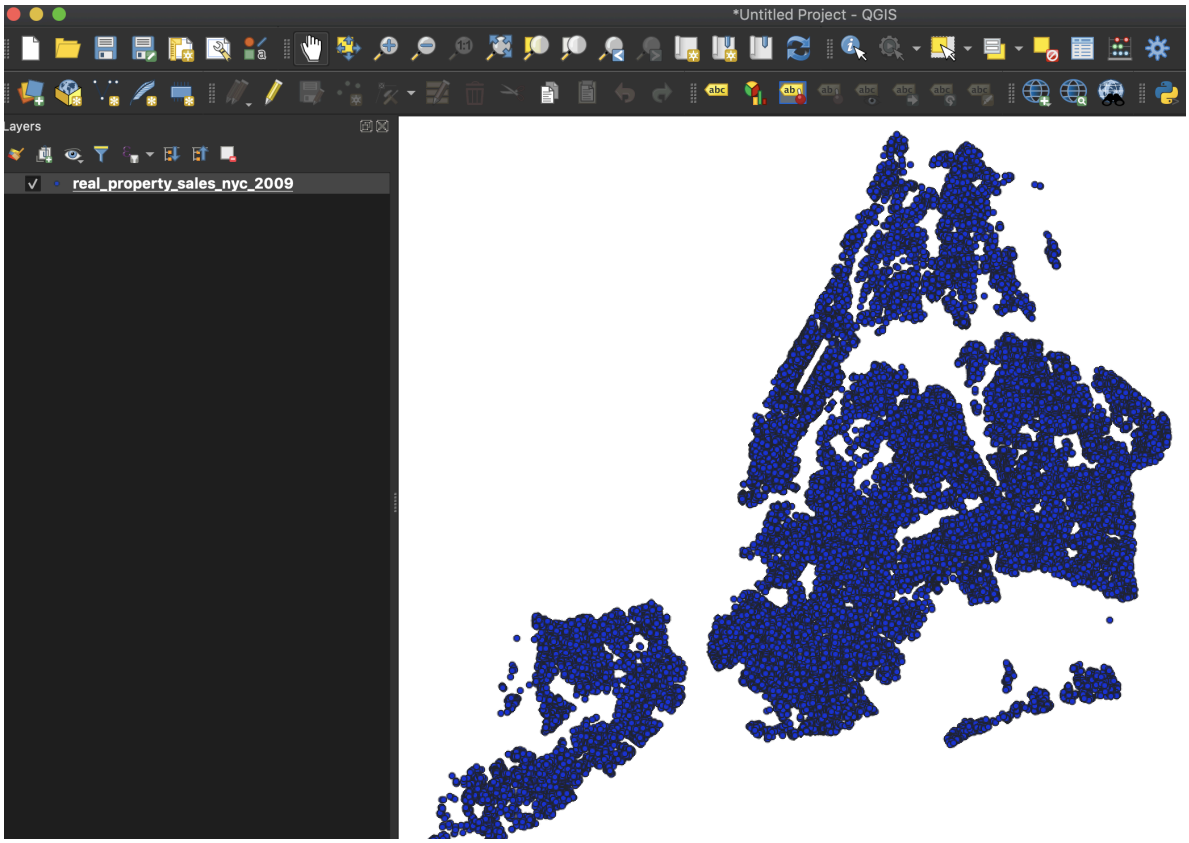
Editing Attribute Tables in QGIS

An attribute table is a table which contains information about the records within a given GIS layer (usually a vector layer, such as a shapefile). The first step in spatial analysis often involves interacting with these attribute tables. This guide offers an overview of how to edit shapefiles via the attribute table. It covers the process of changing information within attribute tables (i.e. editing observations), deleting records (i.e. rows), and adding/deleting fields (i.e. columns) in the attribute table. Please note that this guide presupposes that you have read our other guide on "Querying Attribute Tables in QGIS."

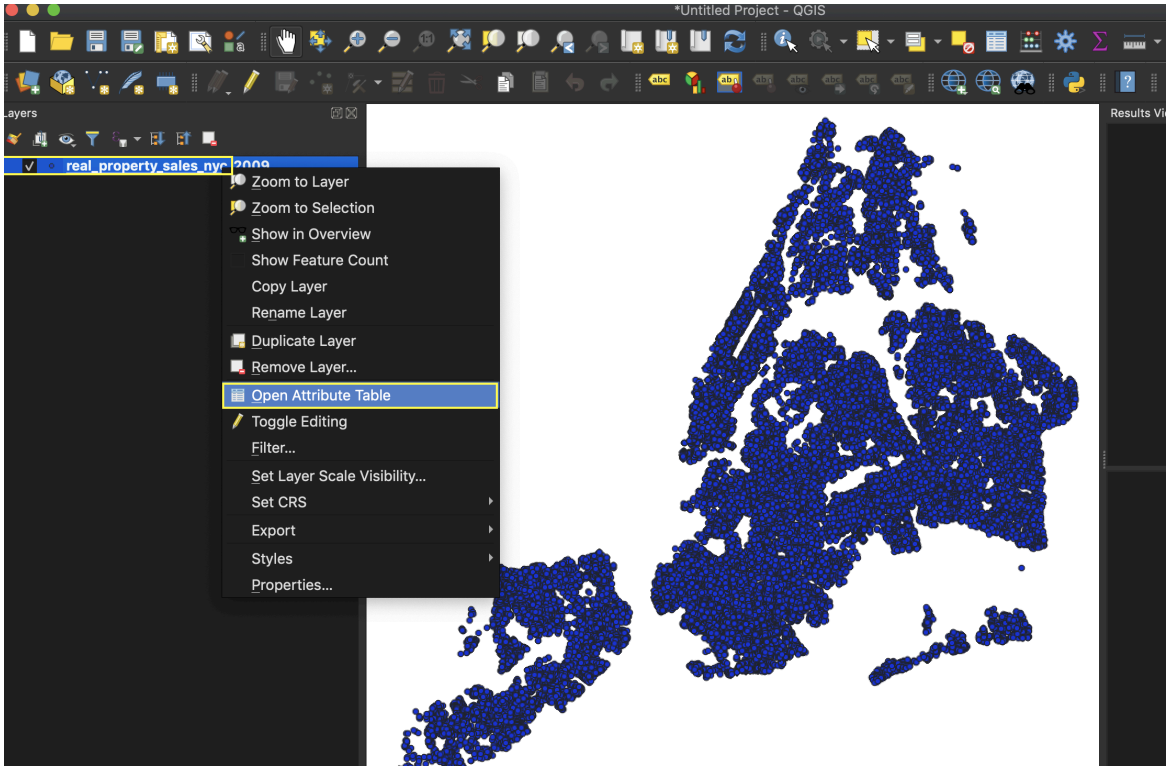
We will use a shapefile that contains information on real estate sales in New York City in the year 2009.[1] Upon importing the shapefile into QGIS, the QGIS project window will look something like this:



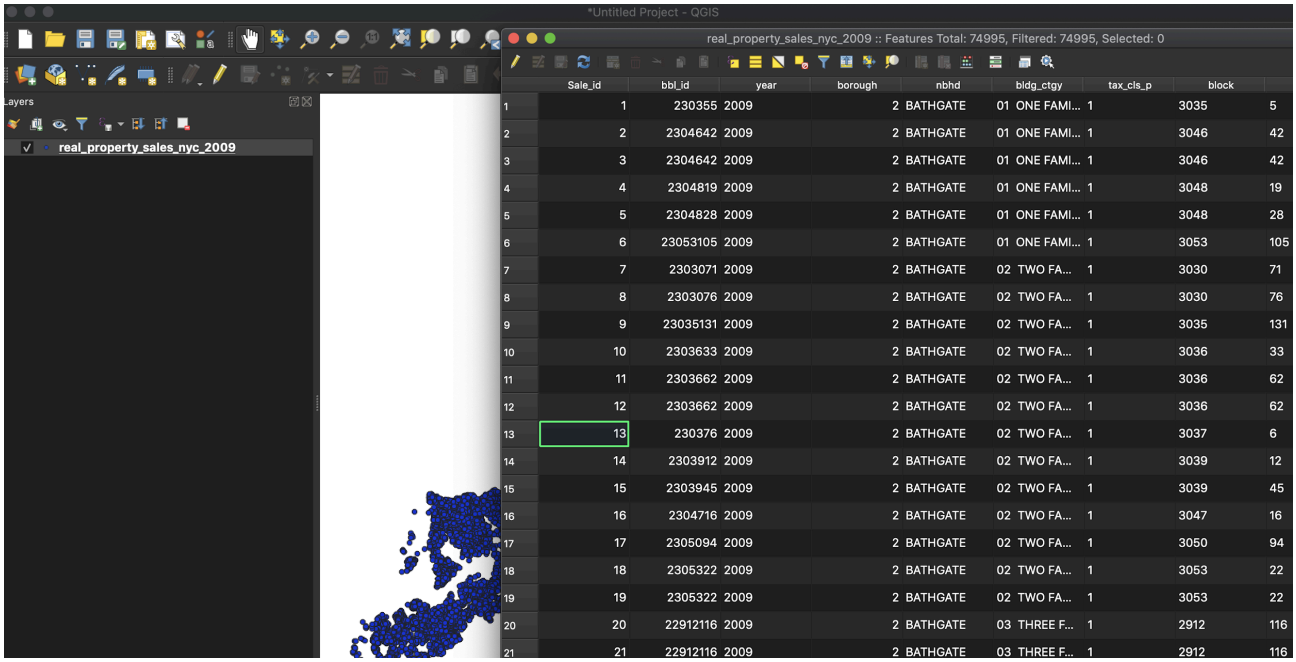
[1] The data can be found (and downloaded) at NYU's Spatial Data Repository (SDR) at the following link: https://geo.nyu.edu/catalog/nyu-2451-34672.

Editing Attribute Tables in QGIS

We'll begin by opening up this shapefile's attribute table. We can do this by right-clicking the shapefile in the table of contents, and selecting "Open Attribute Table":



The attribute table will look something like this:

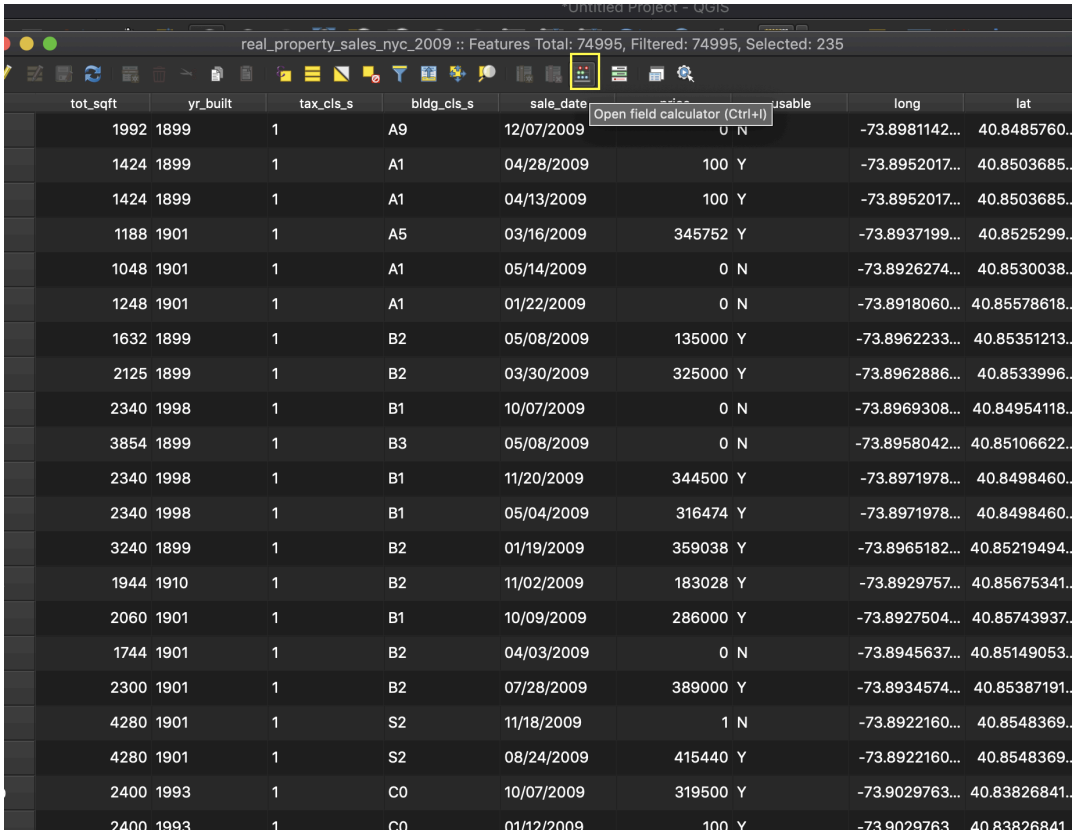


	Sale_id	bbl_id	year	borough	nbhd	bldg_ctgy	tax_cls_p	block	
1	1	230355	2009	2	BATHGATE	01 ONE FAMI...	1	3035	5
2	2	2304642	2009	2	BATHGATE	01 ONE FAMI...	1	3046	42
3	3	2304642	2009	2	BATHGATE	01 ONE FAMI...	1	3046	42
4	4	2304819	2009	2	BATHGATE	01 ONE FAMI...	1	3048	19
5	5	2304828	2009	2	BATHGATE	01 ONE FAMI...	1	3048	28
6	6	23053105	2009	2	BATHGATE	01 ONE FAMI...	1	3053	105
7	7	2303071	2009	2	BATHGATE	02 TWO FA...	1	3030	71
8	8	2303076	2009	2	BATHGATE	02 TWO FA...	1	3030	76
9	9	23035131	2009	2	BATHGATE	02 TWO FA...	1	3035	131
10	10	2303633	2009	2	BATHGATE	02 TWO FA...	1	3036	33
11	11	2303662	2009	2	BATHGATE	02 TWO FA...	1	3036	62
12	12	2303662	2009	2	BATHGATE	02 TWO FA...	1	3036	62
13	13	230376	2009	2	BATHGATE	02 TWO FA...	1	3037	6
14	14	2303912	2009	2	BATHGATE	02 TWO FA...	1	3039	12
15	15	2303945	2009	2	BATHGATE	02 TWO FA...	1	3039	45
16	16	2304716	2009	2	BATHGATE	02 TWO FA...	1	3047	16
17	17	2305094	2009	2	BATHGATE	02 TWO FA...	1	3050	94
18	18	2305322	2009	2	BATHGATE	02 TWO FA...	1	3053	22
19	19	2305322	2009	2	BATHGATE	02 TWO FA...	1	3053	22
20	20	22912116	2009	2	BATHGATE	03 THREE F...	1	2912	116
21	21	22912116	2009	2	BATHGATE	03 THREE F...	1	2912	116

Editing Attribute Tables in QGIS

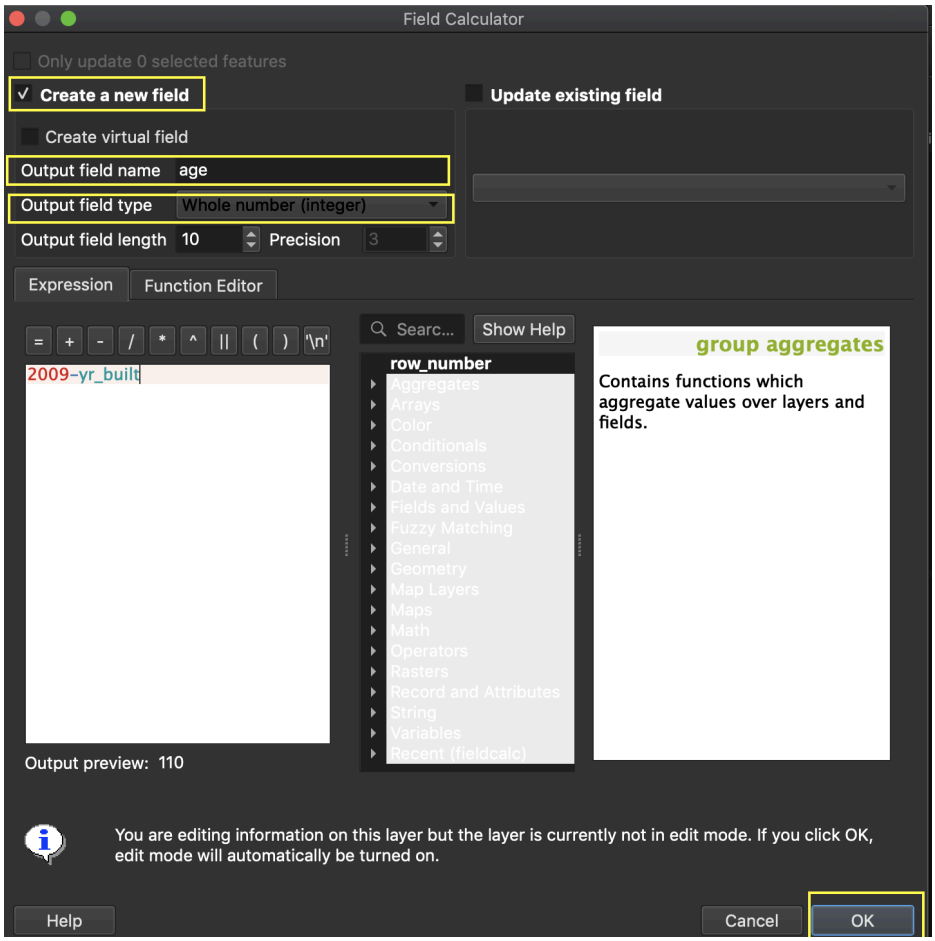
First, let's explore the process of adding a field whose values are based on other fields within a table. For instance, the attribute table contains one field containing information on the year a housing unit was built; this field is named "yr_built". Let's say we want to create a new field, called "age", which contains information on the age of the house in 2009 (when it was sold).

To generate this "age" field, we use a tool called the "field calculator", which we can open up from the attribute toolbar:

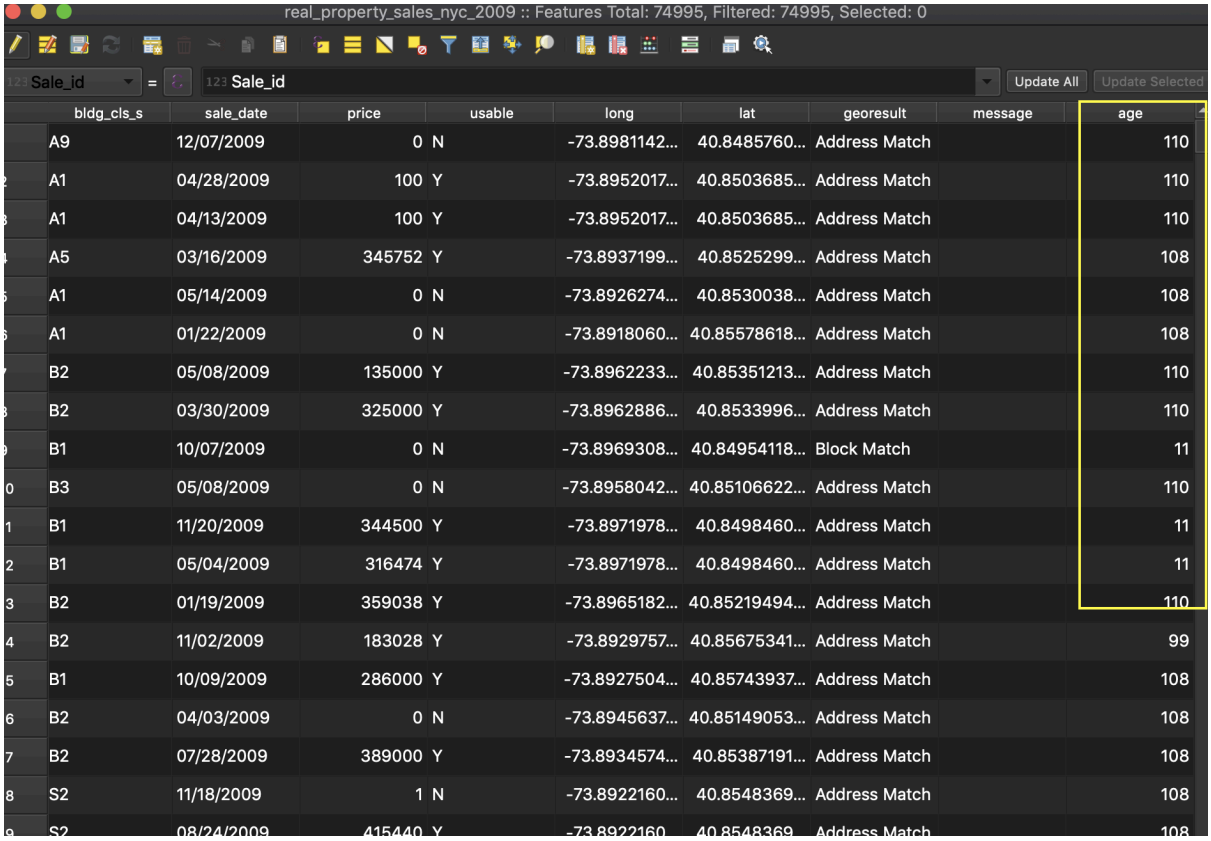


tot_sqft	yr_built	tax_cls_s	bldg_cls_s	sale_date	usable	long	lat
1992	1899	1	A9	12/07/2009	N	-73.8981142...	40.8485760...
1424	1899	1	A1	04/28/2009	100 Y	-73.8952017...	40.8503685...
1424	1899	1	A1	04/13/2009	100 Y	-73.8952017...	40.8503685...
1188	1901	1	A5	03/16/2009	345752 Y	-73.8937199...	40.8525299...
1048	1901	1	A1	05/14/2009	0 N	-73.8926274...	40.8530038...
1248	1901	1	A1	01/22/2009	0 N	-73.8918060...	40.85578618...
1632	1899	1	B2	05/08/2009	135000 Y	-73.8962233...	40.85351213...
2125	1899	1	B2	03/30/2009	325000 Y	-73.8962886...	40.8533996...
2340	1998	1	B1	10/07/2009	0 N	-73.8969308...	40.84954118...
3854	1899	1	B3	05/08/2009	0 N	-73.8958042...	40.85106622...
2340	1998	1	B1	11/20/2009	344500 Y	-73.8971978...	40.8498460...
2340	1998	1	B1	05/04/2009	316474 Y	-73.8971978...	40.8498460...
3240	1899	1	B2	01/19/2009	359038 Y	-73.8965182...	40.85219494...
1944	1910	1	B2	11/02/2009	183028 Y	-73.8929757...	40.85675341...
2060	1901	1	B1	10/09/2009	286000 Y	-73.8927504...	40.85743937...
1744	1901	1	B2	04/03/2009	0 N	-73.8945637...	40.85149053...
2300	1901	1	B2	07/28/2009	389000 Y	-73.8934574...	40.85387191...
4280	1901	1	S2	11/18/2009	1 N	-73.8922160...	40.8548369...
4280	1901	1	S2	08/24/2009	415440 Y	-73.8922160...	40.8548369...
2400	1993	1	C0	10/07/2009	319500 Y	-73.9029763...	40.83826841...
2400	1993	1	C0	01/12/2009	100 Y	-73.9029763...	40.83826841...

In the field calculator dialog box, make sure that the “Create a new field” checkbox is checked. The name of the field we want to create (i.e. the “output field name”) is “age”. In this case, the appropriate output field type would be “Whole number (integer)”. In the white box on the bottom-left of the field calculator, we type the expression that specifies how the new field is to be populated. A house’s age (in 2009) is derived by subtracting the year in which the house was built from 2009. So, the expression we type is “2009-yr_built” (recall that “yr_built” is the name of the field containing the year in which the house was built). Click “OK” once the dialog box looks something like this:



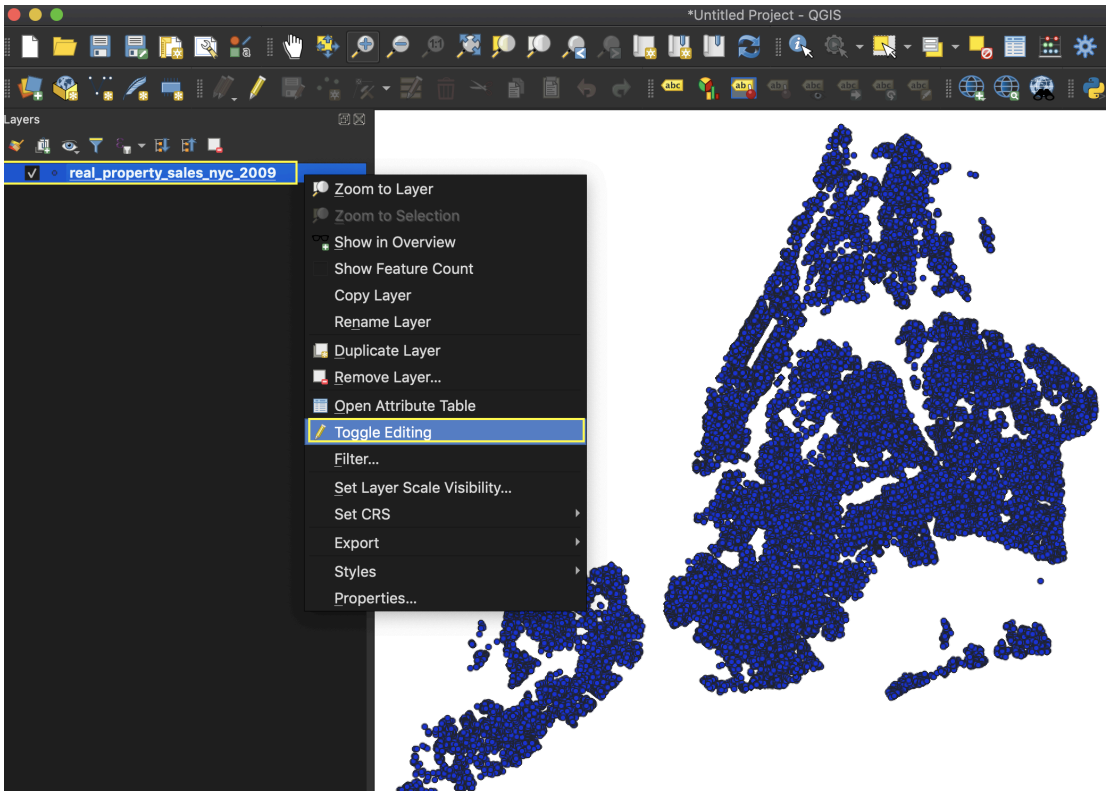
After clicking “OK”, the new “age” field will appear in the attribute table:



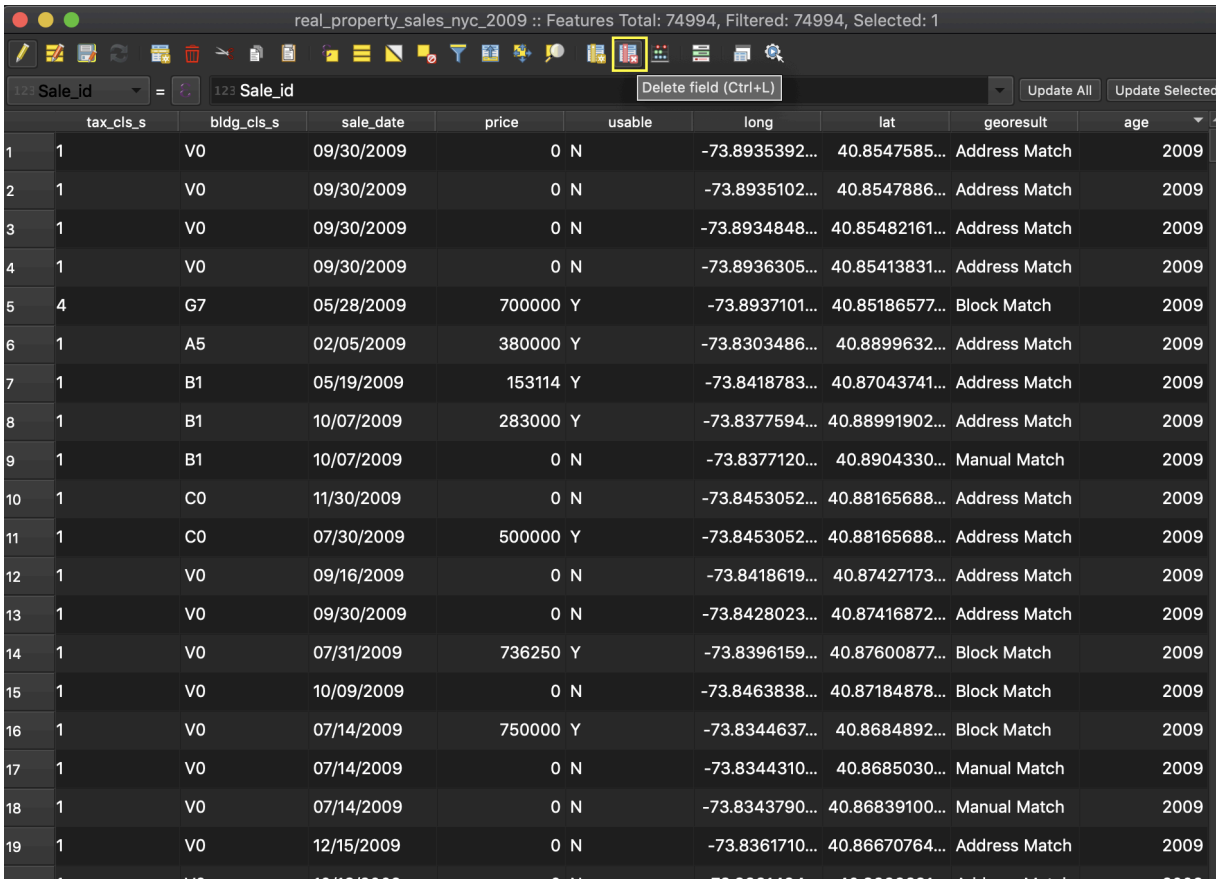
	bldg_cls_s	sale_date	price	usable	long	lat	georesult	message	age
	A9	12/07/2009	0	N	-73.8981142...	40.8485760...	Address Match		110
2	A1	04/28/2009	100	Y	-73.8952017...	40.8503685...	Address Match		110
3	A1	04/13/2009	100	Y	-73.8952017...	40.8503685...	Address Match		110
4	A5	03/16/2009	345752	Y	-73.8937199...	40.8525299...	Address Match		108
5	A1	05/14/2009	0	N	-73.8926274...	40.8530038...	Address Match		108
6	A1	01/22/2009	0	N	-73.8918060...	40.85578618...	Address Match		108
7	B2	05/08/2009	135000	Y	-73.8962233...	40.85351213...	Address Match		110
8	B2	03/30/2009	325000	Y	-73.8962886...	40.8533996...	Address Match		110
9	B1	10/07/2009	0	N	-73.8969308...	40.84954118...	Block Match		11
10	B3	05/08/2009	0	N	-73.8958042...	40.85106622...	Address Match		110
11	B1	11/20/2009	344500	Y	-73.8971978...	40.8498460...	Address Match		11
12	B1	05/04/2009	316474	Y	-73.8971978...	40.8498460...	Address Match		11
13	B2	01/19/2009	359038	Y	-73.8965182...	40.85219494...	Address Match		110
14	B2	11/02/2009	183028	Y	-73.8929757...	40.85675341...	Address Match		99
15	B1	10/09/2009	286000	Y	-73.8927504...	40.85743937...	Address Match		108
16	B2	04/03/2009	0	N	-73.8945637...	40.85149053...	Address Match		108
17	B2	07/28/2009	389000	Y	-73.8934574...	40.85387191...	Address Match		108
18	S2	11/18/2009	1	N	-73.8922160...	40.8548369...	Address Match		108
19	S2	08/24/2009	415440	Y	-73.8922160	40.8548369	Address Match		108

Editing Attribute Tables in QGIS

Having considered how to add a new field to an attribute table, let's look at how to delete a field. For the sake of argument, let's say that we have changed our mind about adding the "Age" field, and now want to delete it. To delete a field, we must first make sure that we have opened up an editing session; we can do this by right-clicking the layer, and then clicking "Toggle Editing".

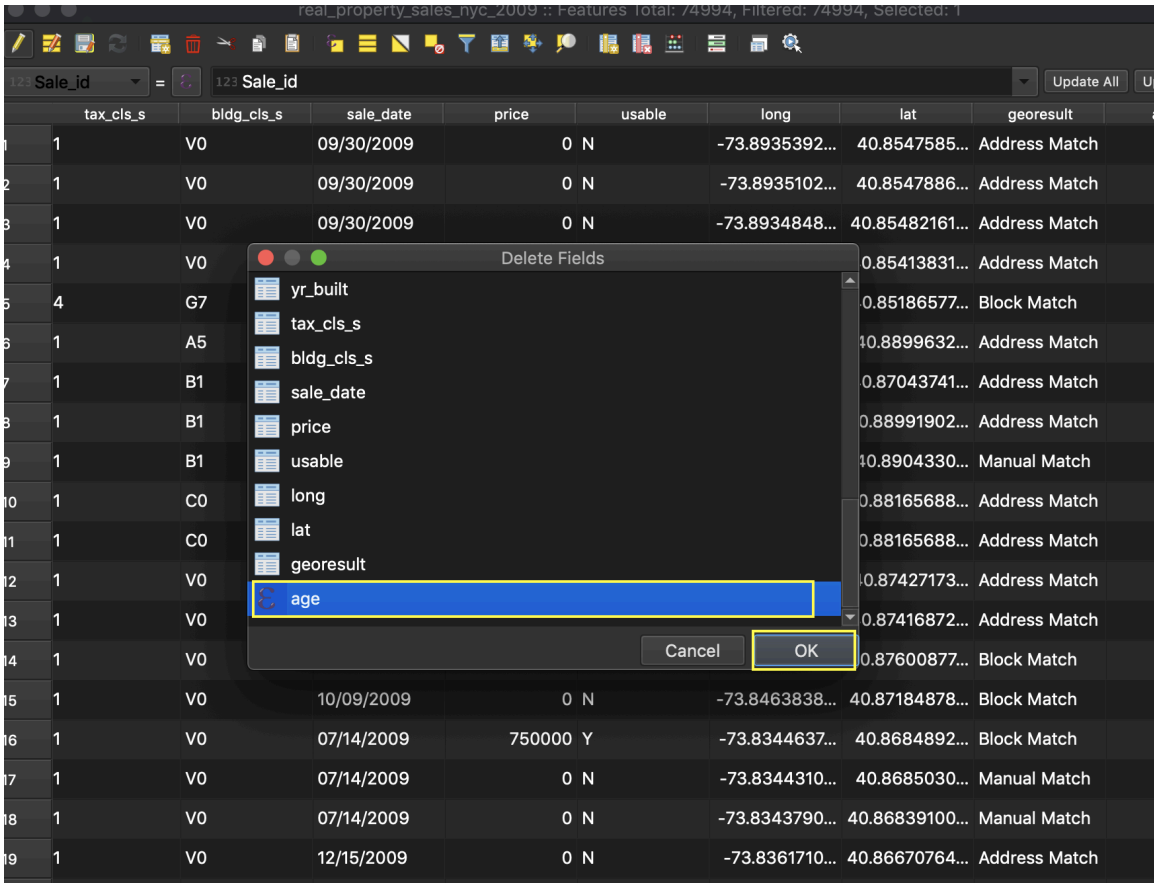


Then, open up the attribute table, and click the “Delete field” button (if the button is greyed out, this indicates that we are not in an editing session):



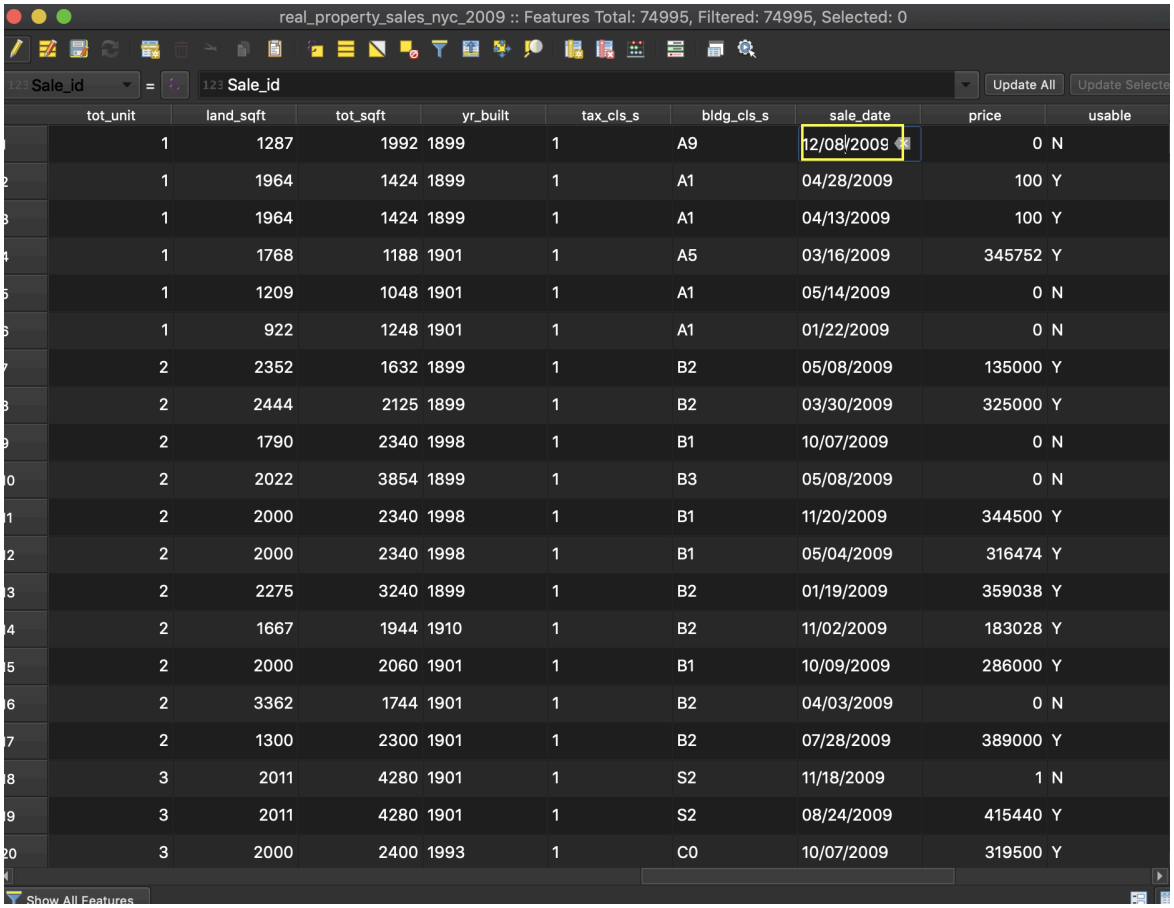
	tax_cls_s	bldg_cls_s	sale_date	price	usable	long	lat	georesult	age
1	1	V0	09/30/2009	0	N	-73.8935392...	40.8547585...	Address Match	2009
2	1	V0	09/30/2009	0	N	-73.8935102...	40.8547886...	Address Match	2009
3	1	V0	09/30/2009	0	N	-73.8934848...	40.85482161...	Address Match	2009
4	1	V0	09/30/2009	0	N	-73.8936305...	40.85413831...	Address Match	2009
5	4	G7	05/28/2009	700000	Y	-73.8937101...	40.85186577...	Block Match	2009
6	1	A5	02/05/2009	380000	Y	-73.8303486...	40.8899632...	Address Match	2009
7	1	B1	05/19/2009	153114	Y	-73.8418783...	40.87043741...	Address Match	2009
8	1	B1	10/07/2009	283000	Y	-73.8377594...	40.88991902...	Address Match	2009
9	1	B1	10/07/2009	0	N	-73.8377120...	40.8904330...	Manual Match	2009
10	1	C0	11/30/2009	0	N	-73.8453052...	40.88165688...	Address Match	2009
11	1	C0	07/30/2009	500000	Y	-73.8453052...	40.88165688...	Address Match	2009
12	1	V0	09/16/2009	0	N	-73.8418619...	40.87427173...	Address Match	2009
13	1	V0	09/30/2009	0	N	-73.8428023...	40.87416872...	Address Match	2009
14	1	V0	07/31/2009	736250	Y	-73.8396159...	40.87600877...	Block Match	2009
15	1	V0	10/09/2009	0	N	-73.8463838...	40.87184878...	Block Match	2009
16	1	V0	07/14/2009	750000	Y	-73.8344637...	40.8684892...	Block Match	2009
17	1	V0	07/14/2009	0	N	-73.8344310...	40.8685030...	Manual Match	2009
18	1	V0	07/14/2009	0	N	-73.8343790...	40.86839100...	Manual Match	2009
19	1	V0	12/15/2009	0	N	-73.8361710...	40.86670764...	Address Match	2009

Within the “Delete Fields” dialog box, we select the field we want to delete (here, “age”), and then select “OK” to delete the field.



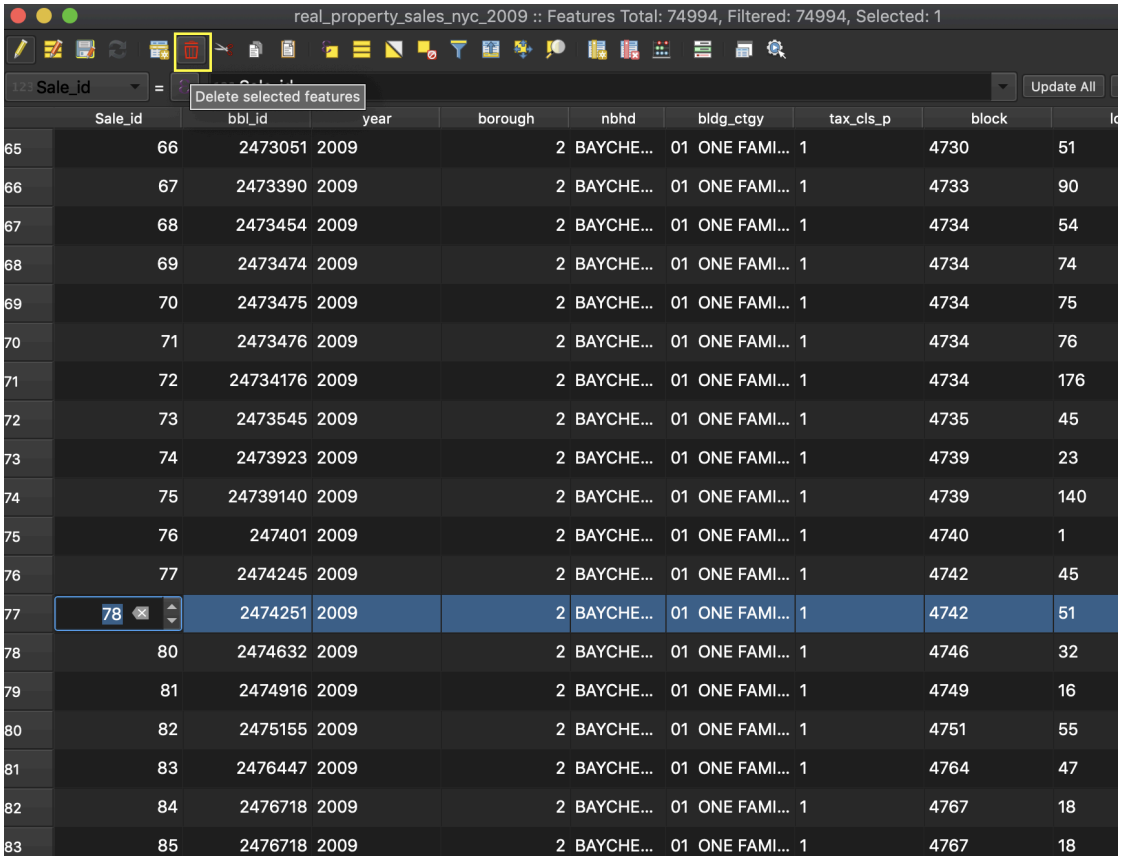
Editing Attribute Tables in QGIS

Before closing our editing session, let's see how to carry out a few more editing tasks. Let's say for the sake of argument that we've identified an error in the record/row where the "Sale_id" variable is equal to 1. In that row, let's say that the "sale_date" observation, which is currently 12/07/2009, should actually be 12/08/2009. Since our editing session is still open from the previous step, we can simply double click within the cell, and directly make the change:



	tot_unit	land_sqft	tot_sqft	yr_built	tax_cls_s	bldg_cls_s	sale_date	price	usable
1	1	1287	1992	1899	1	A9	12/08/2009	0	N
2	1	1964	1424	1899	1	A1	04/28/2009	100	Y
3	1	1964	1424	1899	1	A1	04/13/2009	100	Y
4	1	1768	1188	1901	1	A5	03/16/2009	345752	Y
5	1	1209	1048	1901	1	A1	05/14/2009	0	N
6	1	922	1248	1901	1	A1	01/22/2009	0	N
7	2	2352	1632	1899	1	B2	05/08/2009	135000	Y
8	2	2444	2125	1899	1	B2	03/30/2009	325000	Y
9	2	1790	2340	1998	1	B1	10/07/2009	0	N
10	2	2022	3854	1899	1	B3	05/08/2009	0	N
11	2	2000	2340	1998	1	B1	11/20/2009	344500	Y
12	2	2000	2340	1998	1	B1	05/04/2009	316474	Y
13	2	2275	3240	1899	1	B2	01/19/2009	359038	Y
14	2	1667	1944	1910	1	B2	11/02/2009	183028	Y
15	2	2000	2060	1901	1	B1	10/09/2009	286000	Y
16	2	3362	1744	1901	1	B2	04/03/2009	0	N
17	2	1300	2300	1901	1	B2	07/28/2009	389000	Y
18	3	2011	4280	1901	1	S2	11/18/2009	1	N
19	3	2011	4280	1901	1	S2	08/24/2009	415440	Y
20	3	2000	2400	1993	1	C0	10/07/2009	319500	Y

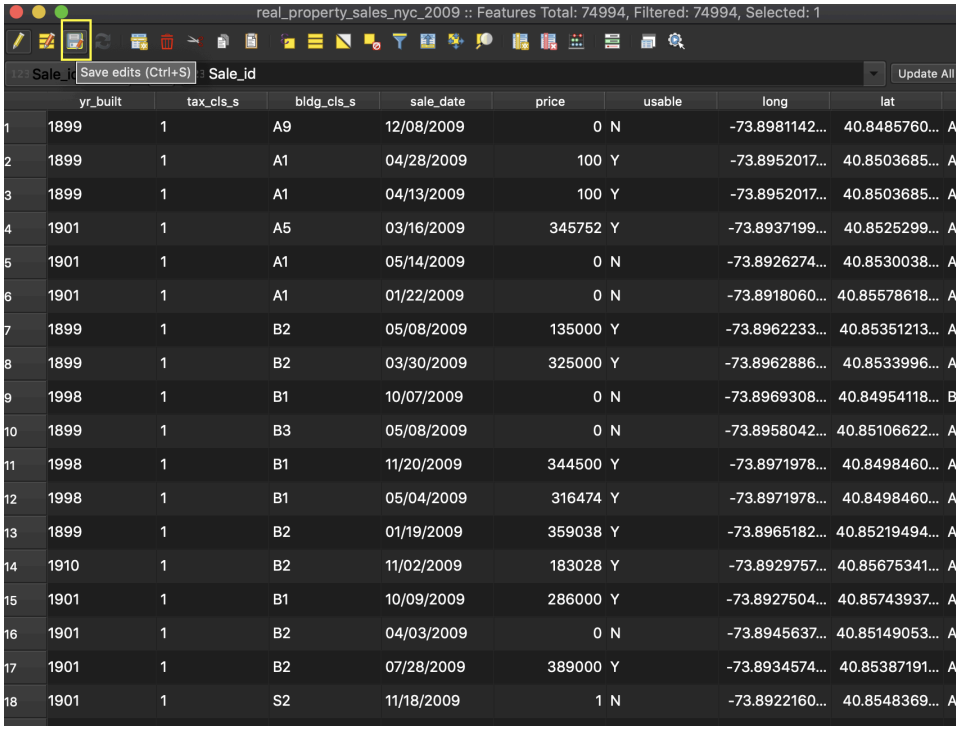
Finally, let's say we want to delete row(s) from our table. If we want to delete multiple rows based on specific criteria, we can first run a query to automatically select them (see our guide on "Querying Attribute Tables in QGIS" for more details). If we only want to delete one row, we can simply highlight it manually. Once the rows we want to delete are highlighted, we simply click the "Delete selected features" button:



	Sale_id	bbl_id	year	borough	nbhd	bldg_ctgy	tax_cls_p	block	lo
65	66	2473051	2009	2	BAYCHE...	01 ONE FAMI...	1	4730	51
66	67	2473390	2009	2	BAYCHE...	01 ONE FAMI...	1	4733	90
67	68	2473454	2009	2	BAYCHE...	01 ONE FAMI...	1	4734	54
68	69	2473474	2009	2	BAYCHE...	01 ONE FAMI...	1	4734	74
69	70	2473475	2009	2	BAYCHE...	01 ONE FAMI...	1	4734	75
70	71	2473476	2009	2	BAYCHE...	01 ONE FAMI...	1	4734	76
71	72	24734176	2009	2	BAYCHE...	01 ONE FAMI...	1	4734	176
72	73	2473545	2009	2	BAYCHE...	01 ONE FAMI...	1	4735	45
73	74	2473923	2009	2	BAYCHE...	01 ONE FAMI...	1	4739	23
74	75	24739140	2009	2	BAYCHE...	01 ONE FAMI...	1	4739	140
75	76	247401	2009	2	BAYCHE...	01 ONE FAMI...	1	4740	1
76	77	2474245	2009	2	BAYCHE...	01 ONE FAMI...	1	4742	45
77	78	2474251	2009	2	BAYCHE...	01 ONE FAMI...	1	4742	51
78	80	2474632	2009	2	BAYCHE...	01 ONE FAMI...	1	4746	32
79	81	2474916	2009	2	BAYCHE...	01 ONE FAMI...	1	4749	16
80	82	2475155	2009	2	BAYCHE...	01 ONE FAMI...	1	4751	55
81	83	2476447	2009	2	BAYCHE...	01 ONE FAMI...	1	4764	47
82	84	2476718	2009	2	BAYCHE...	01 ONE FAMI...	1	4767	18
83	85	2476718	2009	2	BAYCHE...	01 ONE FAMI...	1	4767	18

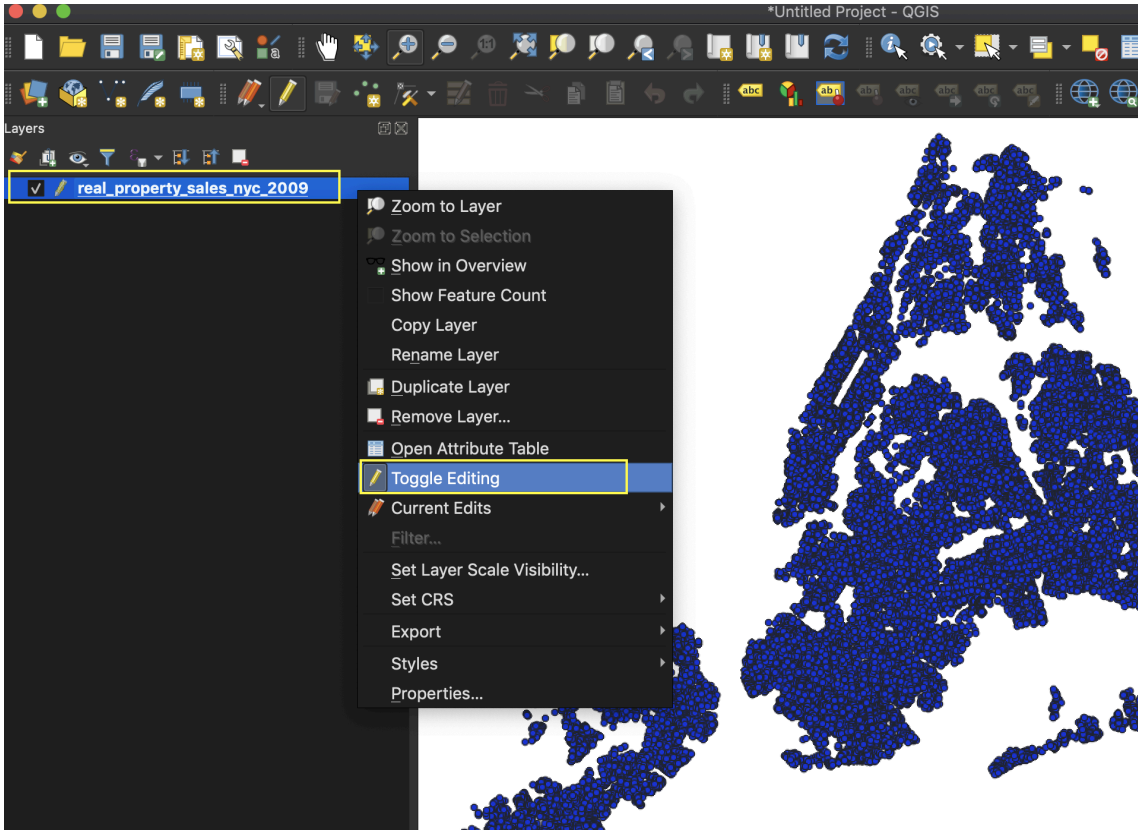
Editing Attribute Tables in QGIS

Once we are done making our changes to the attribute table, we must explicitly save them in order to ensure that they are permanently registered in the shapefile. To do so, we can click the “Save edits” button in the attribute table’s toolbar.



	yr_built	tax_cls_s	bldg_cls_s	sale_date	price	usable	long	lat	
1	1899	1	A9	12/08/2009	0	N	-73.8981142...	40.8485760...	A
2	1899	1	A1	04/28/2009	100	Y	-73.8952017...	40.8503685...	A
3	1899	1	A1	04/13/2009	100	Y	-73.8952017...	40.8503685...	A
4	1901	1	A5	03/16/2009	345752	Y	-73.8937199...	40.8525299...	A
5	1901	1	A1	05/14/2009	0	N	-73.8926274...	40.8530038...	A
6	1901	1	A1	01/22/2009	0	N	-73.8918060...	40.85578618...	A
7	1899	1	B2	05/08/2009	135000	Y	-73.8962233...	40.85351213...	A
8	1899	1	B2	03/30/2009	325000	Y	-73.8962886...	40.8533996...	A
9	1998	1	B1	10/07/2009	0	N	-73.8969308...	40.84954118...	B
10	1899	1	B3	05/08/2009	0	N	-73.8958042...	40.85106622...	A
11	1998	1	B1	11/20/2009	344500	Y	-73.8971978...	40.8498460...	A
12	1998	1	B1	05/04/2009	316474	Y	-73.8971978...	40.8498460...	A
13	1899	1	B2	01/19/2009	359038	Y	-73.8965182...	40.85219494...	A
14	1910	1	B2	11/02/2009	183028	Y	-73.8929757...	40.85675341...	A
15	1901	1	B1	10/09/2009	286000	Y	-73.8927504...	40.85743937...	A
16	1901	1	B2	04/03/2009	0	N	-73.8945637...	40.85149053...	A
17	1901	1	B2	07/28/2009	389000	Y	-73.8934574...	40.85387191...	A
18	1901	1	S2	11/18/2009	1	N	-73.8922160...	40.8548369...	A

To close our editing session, we can go back to the table of contents, right-click the shapefile, and once again select “Toggle editing”.



At this point, the shapefile is again locked for editing, and cannot be changed again until a new editing session is opened.