A Very Simple Example, And Important Commands: For, Do, Table

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Begin with Clear every time for a new code.

```
ClearAll["Global`*"](*This is a very important command. Make sure it
 is at the top of every file you create in mathematica. This way when
 you evaluate your notebook everything is cleared before it gets rerun*)
```

1. Build Table

```
list = Table[√x, {x, 0, 100}]
```

$$\{0, 1, \sqrt{2}, \sqrt{3}, 2, \sqrt{5}, \sqrt{6}, \sqrt{7}, 2\sqrt{2}, 3, \sqrt{10}, \sqrt{11}, 2\sqrt{3}, \sqrt{13}, \sqrt{14}, \sqrt{15}, 4, \sqrt{17}, 3\sqrt{2}, \sqrt{19}, 2\sqrt{5}, \sqrt{21}, \sqrt{22}, \sqrt{23}, 2\sqrt{6}, 5, \sqrt{26}, 3\sqrt{3}, 2\sqrt{7}, \sqrt{29}, \sqrt{30}, \sqrt{31}, 4\sqrt{2}, \sqrt{33}, \sqrt{34}, \sqrt{35}, 6, \sqrt{37}, \sqrt{38}, \sqrt{39}, 2\sqrt{10}, \sqrt{41}, \sqrt{42}, \sqrt{43}, 2\sqrt{11}, 3\sqrt{5}, \sqrt{46}, \sqrt{47}, 4\sqrt{3}, 7, 5\sqrt{2}, \sqrt{51}, 2\sqrt{13}, \sqrt{53}, 3\sqrt{6}, \sqrt{55}, 2\sqrt{14}, \sqrt{57}, \sqrt{58}, \sqrt{59}, 2\sqrt{15}, \sqrt{61}, \sqrt{62}, 3\sqrt{7}, 8, \sqrt{65}, \sqrt{66}, \sqrt{67}, 2\sqrt{17}, \sqrt{69}, \sqrt{70}, \sqrt{71}, 6\sqrt{2}, \sqrt{73}, \sqrt{74}, 5\sqrt{3}, 2\sqrt{19}, \sqrt{77}, \sqrt{78}, \sqrt{79}, 4\sqrt{5}, 9, \sqrt{82}, \sqrt{83}, 2\sqrt{21}, \sqrt{85}, \sqrt{86}, \sqrt{87}, 2\sqrt{22}, \sqrt{89}, 3\sqrt{10}, \sqrt{91}, 2\sqrt{23}, \sqrt{93}, \sqrt{94}, \sqrt{95}, 4\sqrt{6}, \sqrt{97}, 7\sqrt{2}, 3\sqrt{11}, 10\}$$

Take the ith value of this list

```
list[[1]]
```

```
0
```

2. take the integers only

For loop

```
intlist = {};
```

```
For[i = 1, i ≤ Length[list], i++,
 If[MatchQ[list[[i]], _Integer], AppendTo[intlist, list[[i]]]]]
intlist
```

```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

Do loop

```
Clear[intlist]
```

```
intlist = {};
```

```
Do[If[MatchQ[list[[i]], _Integer], AppendTo[intlist, list[[i]]]],
 {i, 1, Length[list]}]
intlist
```

```
{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```