



Stolen diamond valuation

September 2021

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Color



D

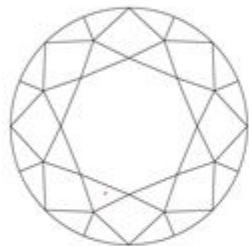
H

N

Z

D > E > F > G > H > I > J > ... > Z

Clarity



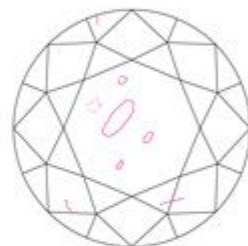
VVS₂



VS₂



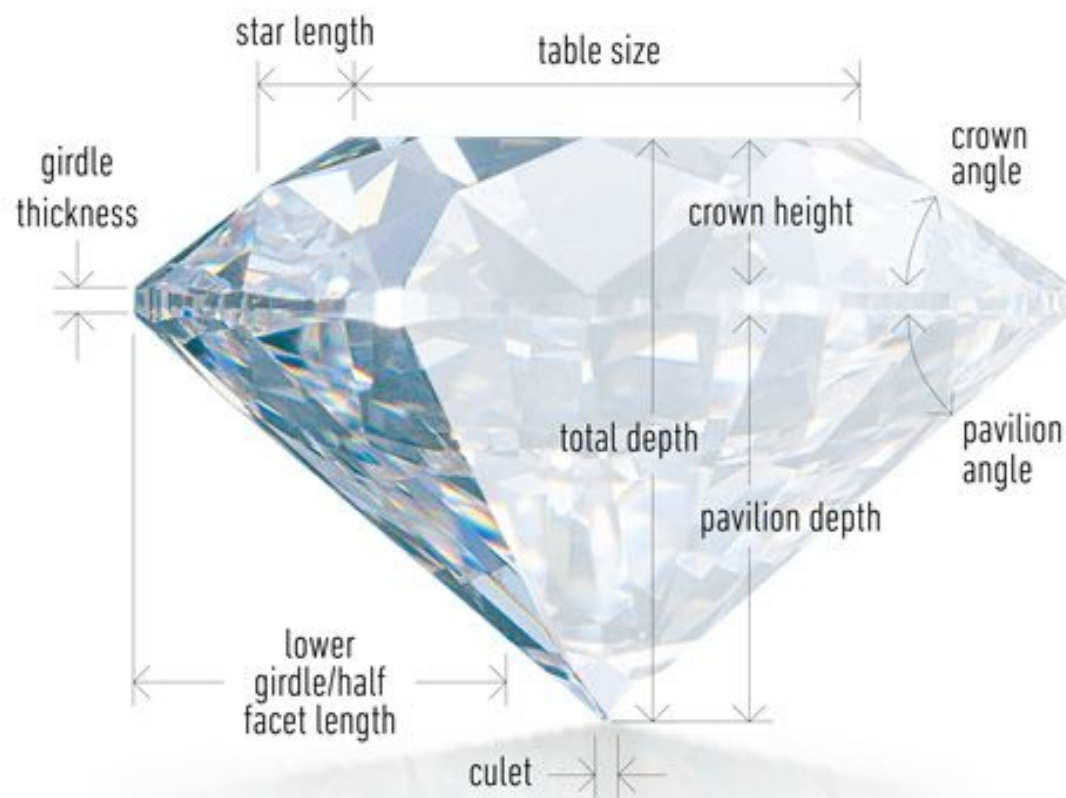
SI₂



I₂

FL > IF > VVS1 > VVS2 > VS1 > VS2 > SI1 > SI2 > I1 > I2

Cut



Carat



0.50 ct.



0.75 ct.



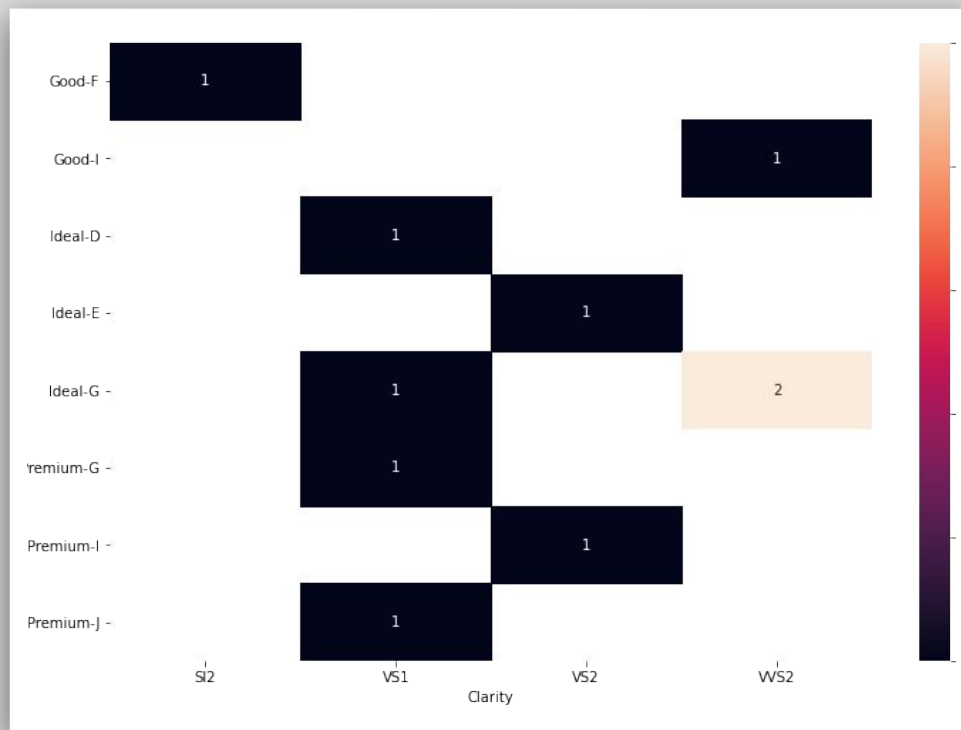
1.00 ct.



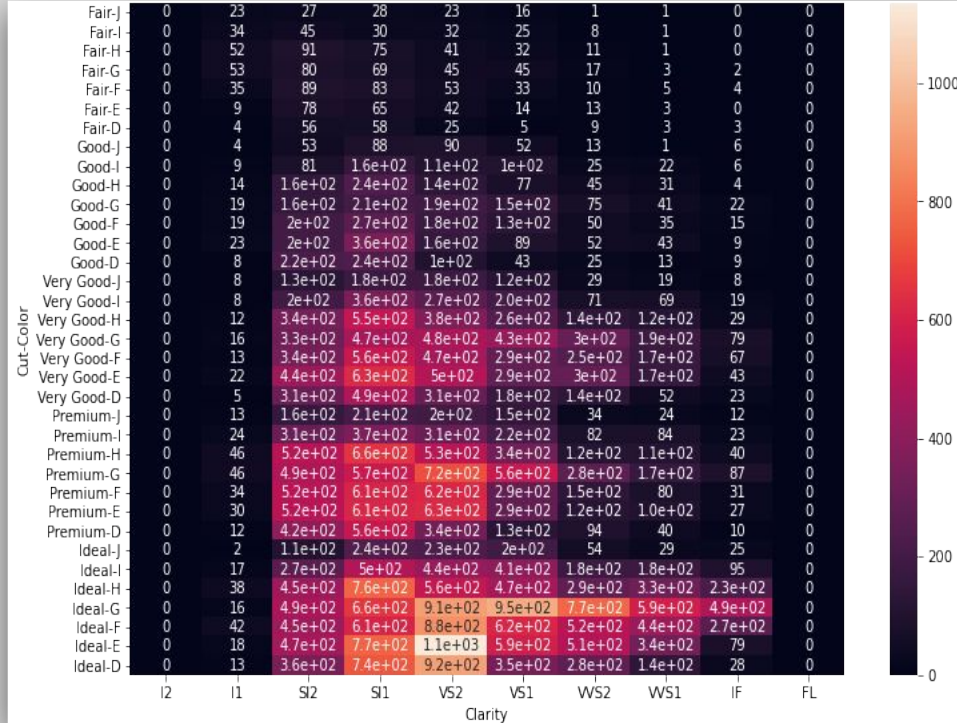
2.00 ct.



5.00 ct.



The Stolen diamonds



Manual Solution

For each stolen diamond

1. Take similar known diamonds across Color, Cut and Clarity
2. Select the closest known diamond
3. Being the most similar, the value of the diamonds must be similar

Manual valuation

Diamond 1

2283

I - VVS2 - Good -
0.71 ct.

Diamond 2

3380

G - VS1 - Ideal -
0.83 ct.

Diamond 3

1746

E - VS2 - Ideal -
0.5 ct.

Diamond 4

790

J - VS1 -
Premium - 0.39
ct.

Diamond 5

828

G - VS1 -
Premium - 0.32
ct.

Diamond 6

3267

F - SI2 - Good -
0.9 ct.

Diamond 7

1873

D - VS1 - Ideal -
0.51 ct.

Diamond 8

9820

G - VVS2 - Ideal -
1.12 ct.

Diamond 9

931

G - VVS2 - Ideal -
0.4 ct.

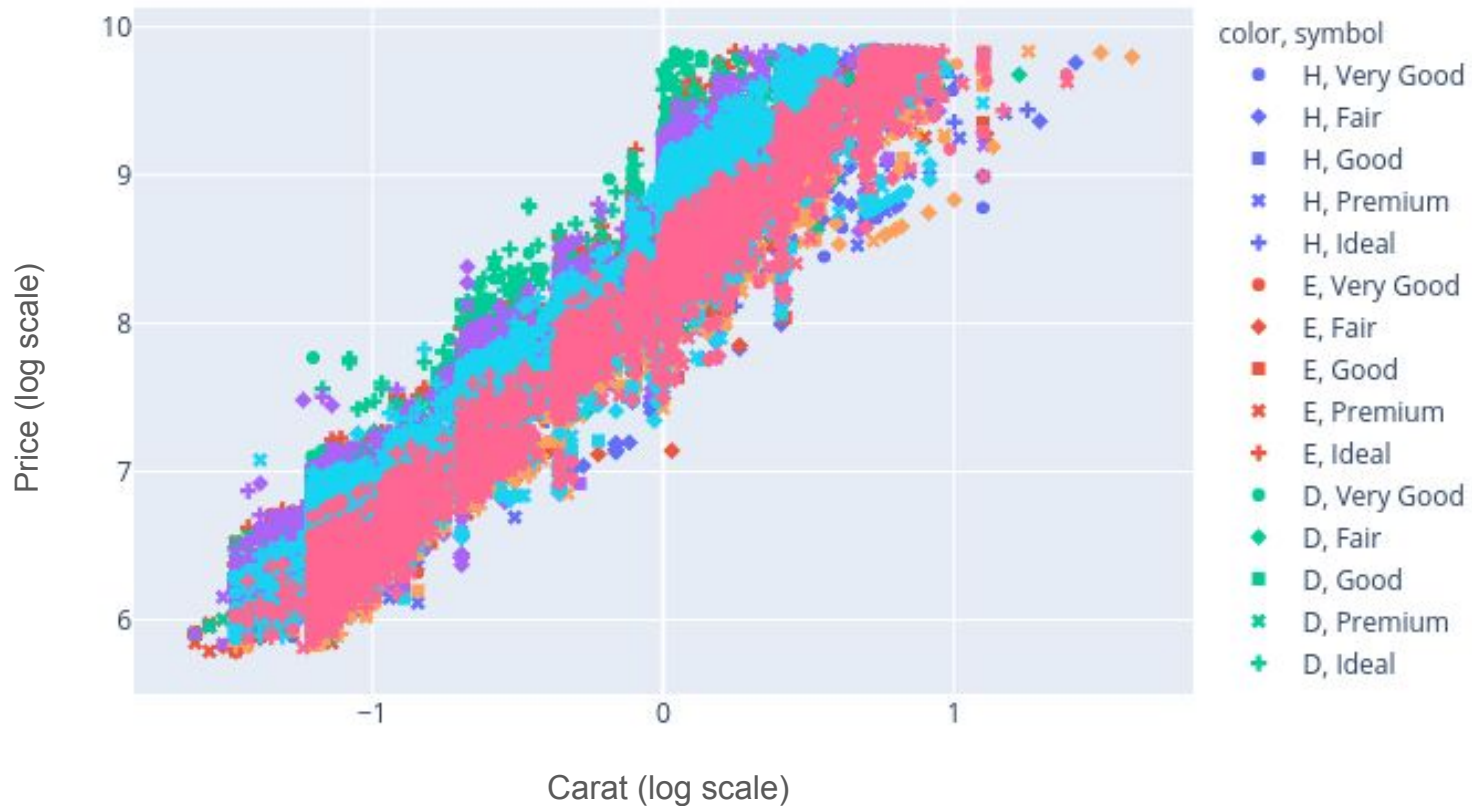
Diamond 10

648

I - VS2 -
Premium - 0.36
ct.

First Estimation of Total Cost 25,566

Quick data science solution



Big picture

1. The main objective is **validation**.

Diamond 1

2283 VS

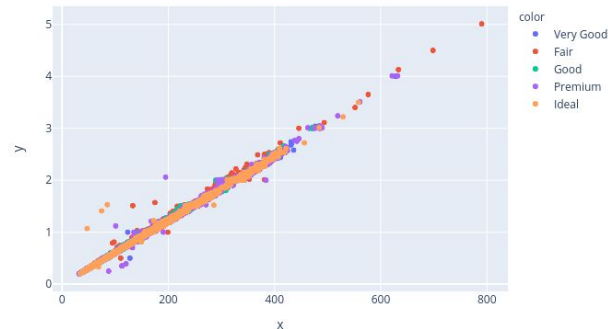
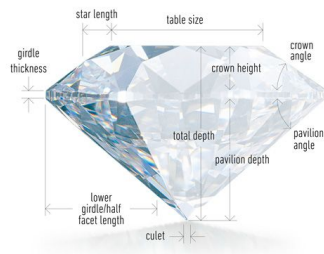
I - VVS2 - Good -
0.71 ct.

Diamond 1

2585 - 2622

I - VVS2 - Good - 0.71 ct.

2. Redundant information



Big picture

3. *Observed prices* are not *mean prices*

Diamond 1		Diamond 1
2002 - 3385	VS	2585 - 2622
I - VVS2 - Good - 0.71 ct.		I - VVS2 - Good - 0.71 ct.

4. We will take *mean* prices to be *fair* prices. If *median* prices are fair prices we are overestimating the value of the diamonds!



Model characteristics

1. The better Cut, the higher price.
2. The better Color, the higher price.
3. The better Clarity, the higher price.
4. The higher Carat, the higher price

Valuation by (mean) estimation

Diamond 1

2585

2622

I - VVS2 - Good -
0.71 ct.

Diamond 2

4073

4110

G - VS1 - Ideal -
0.83 ct.

Diamond 3

1628

1642

E - VS2 - Ideal -
0.5 ct.

Diamond 4

675

685

J - VS1 -
Premium - 0.39
ct.

Diamond 5

661

668

G - VS1 -
Premium - 0.32
ct.

Diamond 6

3179

3216

F - SI2 - Good -
0.9 ct.

Diamond 7

1912

1932

D - VS1 - Ideal -
0.51 ct.

Diamond 8

8204

8293

G - VVS2 - Ideal -
1.12 ct.

Diamond 9

1179

1191

G - VVS2 - Ideal -
0.4 ct.

Diamond 10

623

631

I - VS2 -
Premium - 0.36
ct.

First Estimation of Total Cost 24,719 - 24,990