Scala, Redis and Bokeh

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Scala

- Developed by Martin Odersky in 2003 at EPFL.
- Scala derived from Scalable Language, Blends object-oriented and functional programming in a statically typed language.
- Runs on JVM and Statically typed.
- Declares variables in two different ways **:** val - immutable, var - mutable
- Basic Types: Byte, Short, Int, Long, Float, ?Double, Char, Boolean
- We have to make distinction between methods and functions. A method is a function that is a member of a class, trait or object.
- For high performance data science projects Scala is best language for Spark.

Object and Class representation

```
object HelloWorld {
  def main(args: Array[String]) {
    println("Hello, World!")
  }
}
```

```
defined object HelloWorld
```

```
class Person{
var name: String = "temp"
var gender: String = "temp"
var age: Int = 0

def walking = println(s"$name is walking")

def talking = println(s"$name is talking")

}
// Creating an object of the Person class
val firstPerson = new Person
```

```
defined class Person
firstPerson: Person = Person@3b9f5be2
```

Redis

- Redis is an open source in-memory data store for use as a database, cache, message broker.
- NoSQL database stores data as key-value pairs.
- It supports various data structures such as strings, hashes, sets, lists, sorted sets, bitmaps, hyperloglogs.
- Very Fast: Can perform around 110,000 SETs per second, about 81,000 GETs per second.
- Redis has client API developed in all popular languages -C, Ruby, Java, JavaScript, Python and more.

Interacting with redis from python

```
import redis
r = redis.Redis(host='127.0.0.1',
                port = 6379,
                decode_responses=True)
```

Storing DataFrame into Redis

```
def storeInRedis(alias, df):
    df_compressed = pa.serialize(df).to_buffer().to_pybytes()
    res = r.set(alias,df_compressed)
    if res == True:
        print(f'{alias} cached')
storeInRedis('data', df)
```

Load DataFrame from Redis

```
def loadFromRedis(alias):
    df = r.get(alias)
    try:
        return pa.deserialize(df)
    except:
        print("No data")
loadFromRedis('diamond_dataset')
```

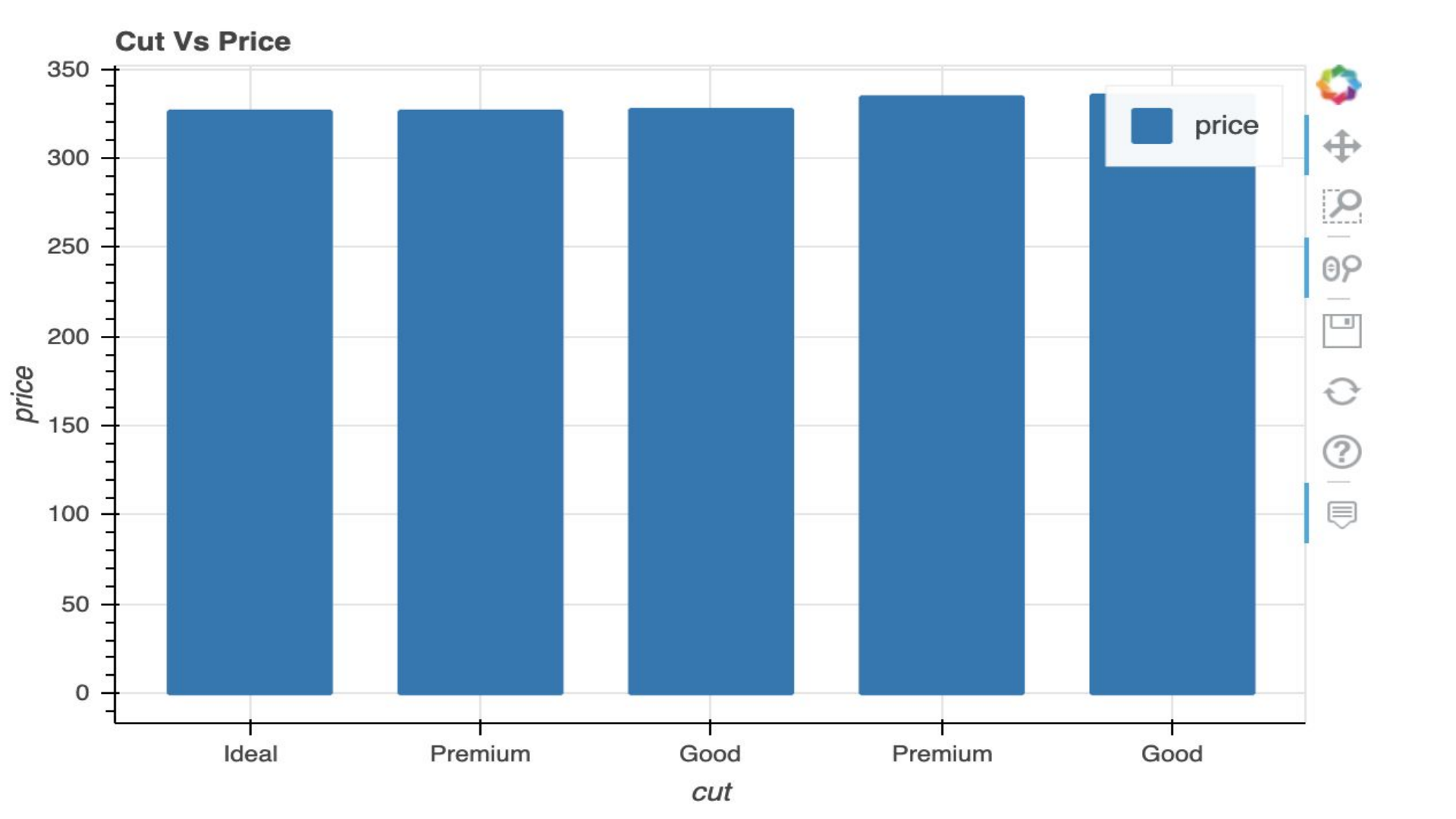
```
storeInRedis('diamond_dataset', df)
```

```
diamond_dataset cached
```

```
loadFromRedis('diamond_dataset')
```

Bokeh

- Bokeh is an interactive visualization library, provides elegant, concise construction of versatile graphics.
- Graphs are built up one layer at a time. We start creating a figure, and then we add elements called glyphs, to the figure.
- First, we make a plot using figure method and then we append our glyphs to the plot by passing data.
- To Show our plot in jupyter notebook right below the code should use output_notebook call.
- We get few tools for free with any Bokeh plot which are right side and include zooming, selection, plot saving, refreshing abilities.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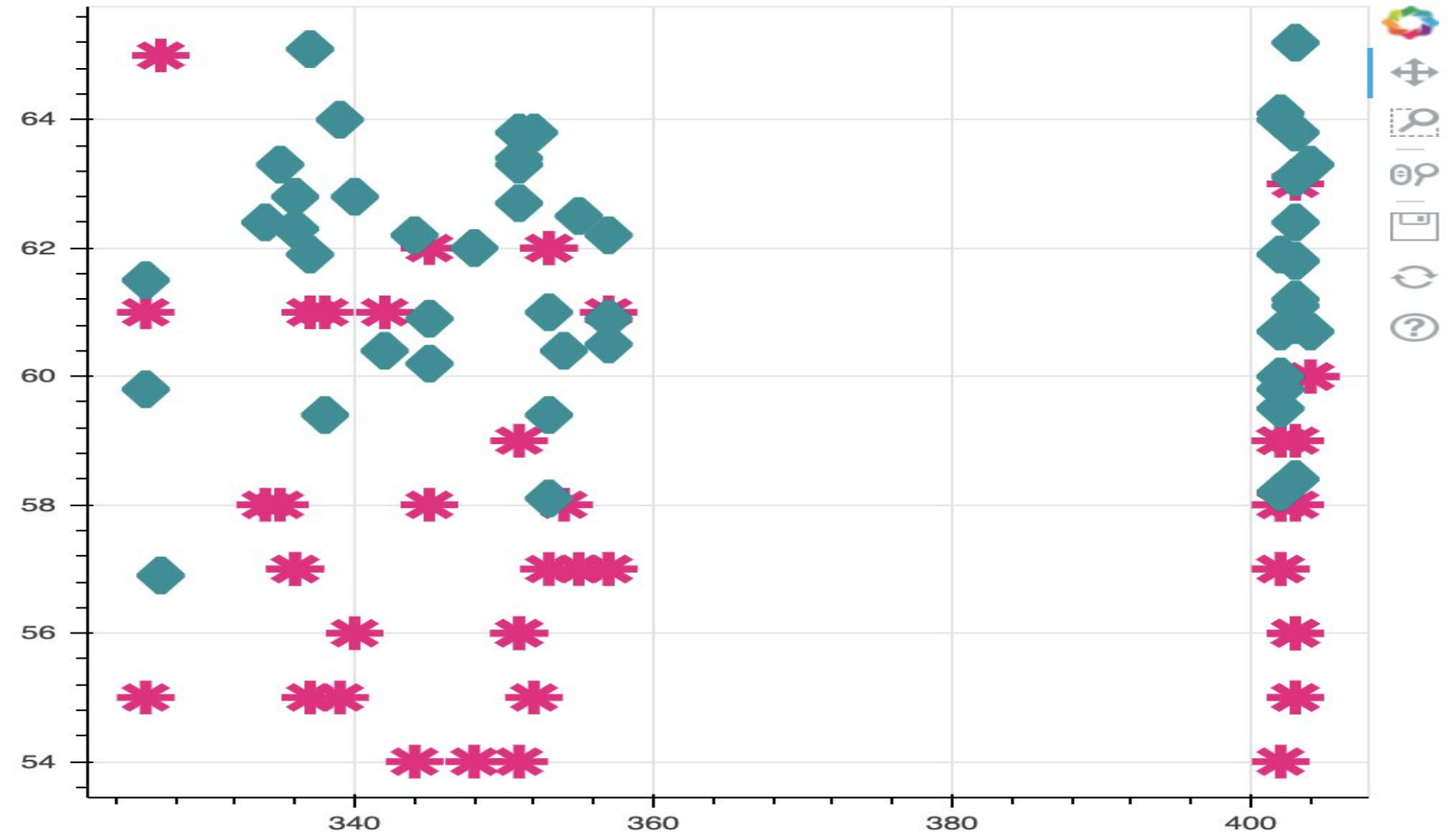
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