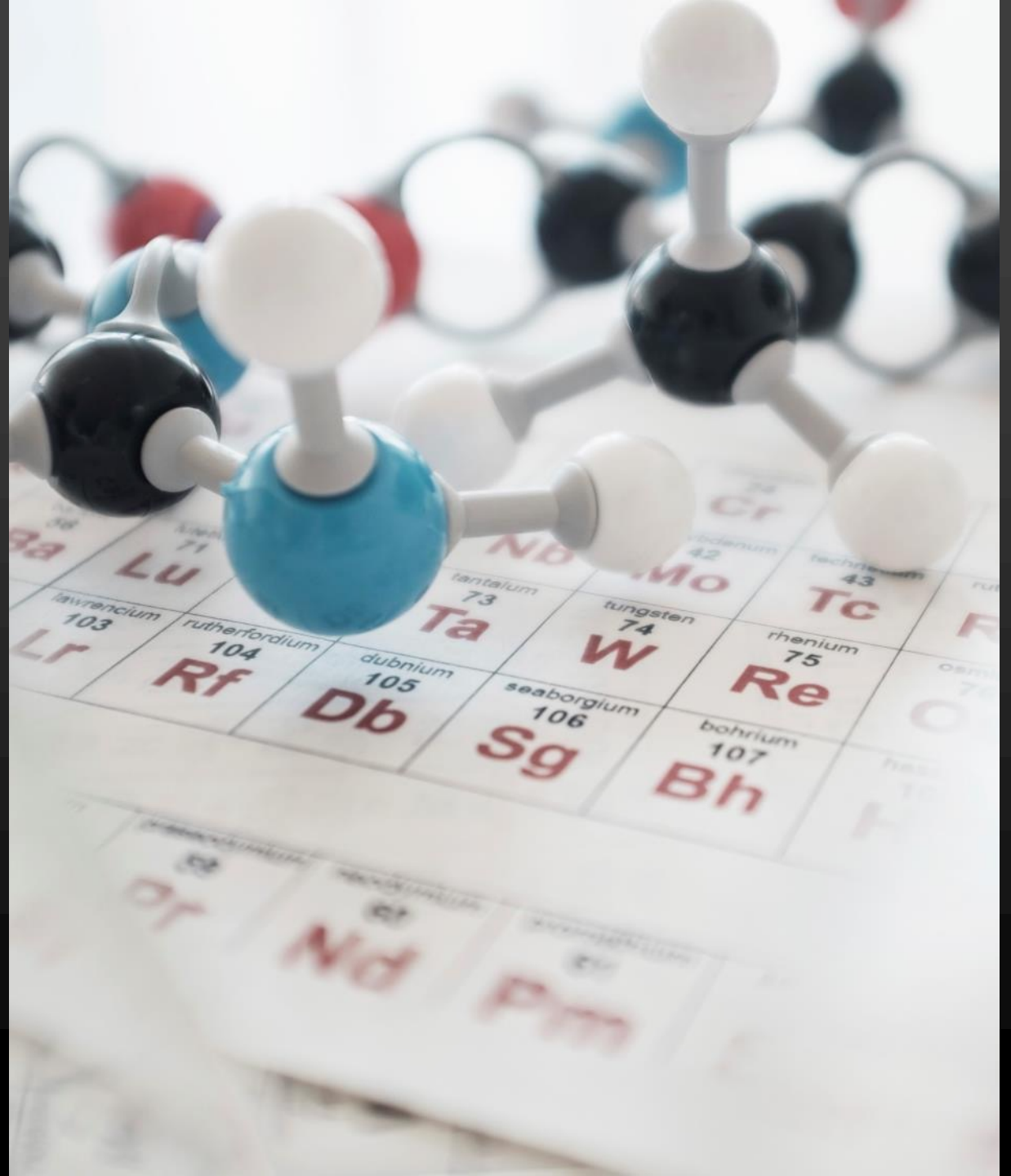# DATA SCIENCE USING PYTHON IN MEDICINE

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What is Big Data?
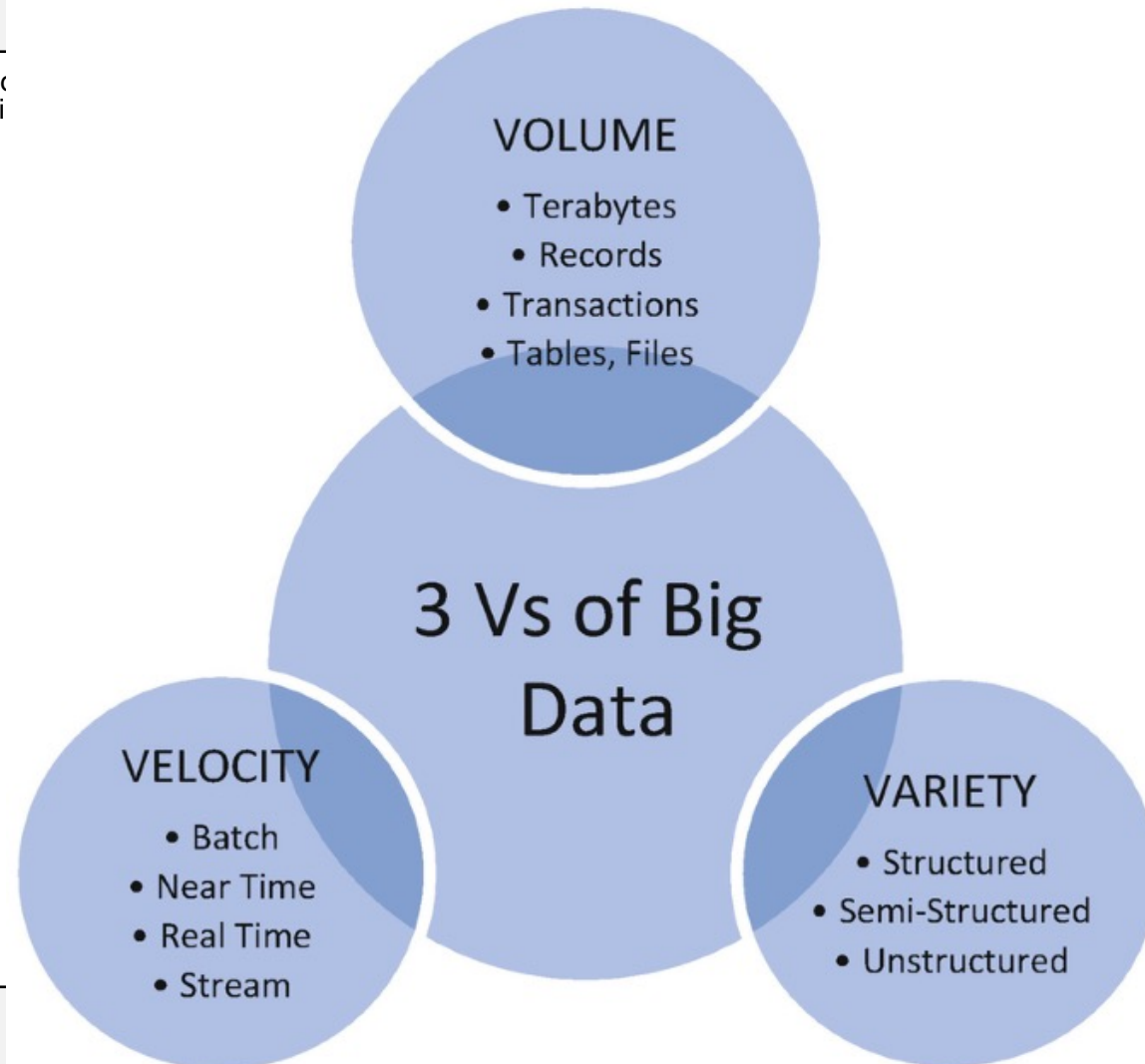
✓ Big Data generates value from the storage and processing of very large quatities of digital information that can not by anaalyzed with traditional computer techniques.

✓ Having data bigger it requires different approaches:

- Techniques, tools and architecture

Three characteristics of Big Data 3 Vs

3

How we can use Python in Big Data?

➢ Matplotlib, Seaborn, and Plotly

➢ NumPy, Pandas, Scikit-learn, Keras, and TensorFlow

➢ **Natural Language Toolkit (NLTK) and OpenCV**

Diagnosis of diabetes risk based on the patient's condition

6	148	72	35	0	33.6	0.627	50	1
1	85	66	29	0	26.6	0.351	31	0
8	183	64	0	0	23.3	0.672	32	1
1	89	66	23	94	28.1	0.167	21	0
0	137	40	35	168	43.1	2.288	33	1
5	116	74	0	0	25.6	0.201	30	0
3	78	50	32	88	31.0	0.248	26	1
10	115	0	0	0	35.3	0.134	29	0
2	197	70	45	543	30.5	0.158	53	1
8	125	96	0	0	0.0	0.232	54	1
4	110	92	0	0	37.6	0.191	30	0
10	168	74	0	0	38.0	0.537	34	1
10	139	80	0	0	27.1	1.441	57	0

DataSet

1.Number of pregnancies (all source patients are women at least 21 years of age).

2.Plasma glucose concentration 2 hours after administration in an oral glucose tolerance test.

3.Diastolic blood pressure (mm Hg).

4.The thickness of the skin fold in the triceps area (mm).

5.Serum insulin concentration (μU/ml).

6.Body mass index (weight in kg/(height in m)^2).

7.A function that describes the genetic predisposition to diabetes (diabetes pedegree).
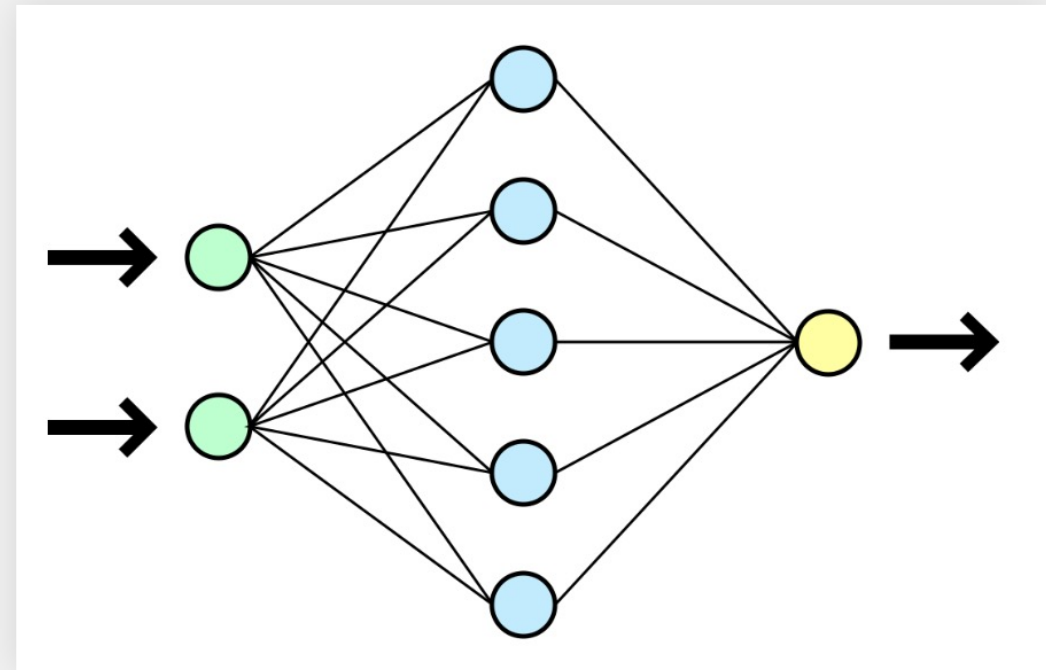
8.Age (years).

The neural network model

➢**the input**

➢**output**

➢**hidden layers**

Our neural network will have a dense structure - each neuron is connected to all the neurons of the next layer.

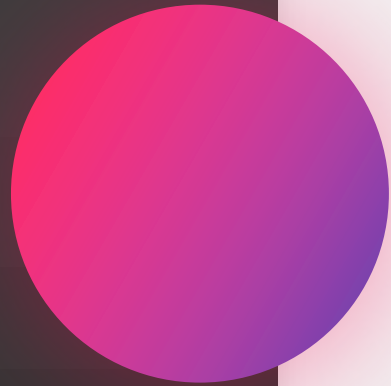The output layer will consist of a single neuron that determines the likelihood of diabetes.

Result

Forecast accuracy according to our model for a given metric:

```
acc: 87.89%
```

Thanks!

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