**Support Vector Machine**

**Ans no:1**

The differences between Linear and Non-Linear Support Vector Machines (SVMs) are-

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| **Linear SVM** | **Non-Linear SVM** |
| 1.Linear SVM means if a dataset can be classified into two classes by using a single straight line, then such data is termed as linearly separable data | 1.Non-Linear SVM which means if a dataset cannot be classified by using a straight line, then such data is termed as non-linear data |
| 2.It can be easily separated with a linear line. | 2.It cannot be easily separated with a linear line. |
| 3.Data is classified with the help of hyperplanes. | 3.We use Kernels to make non-separable data into separable data. |
| 4.Data can be easily classified by drawing a straight line. | 4.We map data into high dimensional space to classify. |
| 5.The linear SVC is generally better for smaller train-test data split ratios. | 5.The non-linear SVC is better than the linear SVC. |

**Ans no:2**

given the following positively labeled data points:

{(3/0),(2/-1).(0/1)}

And the negatively labeled data points:

{(1/0),(0/1),(-1/0)}

x=(1/0)

Here, 3 represented by x coordinate.

And 0 represented by y coordinate.

Example, = or (x,y)=(3,0)

So , the graph is









