1. Aspect Term Extraction :

   Results :
a. Training of the Model :
```
Epoch: 0      loss: 1.0883560180664062    Batch: 1 / 50
Epoch: 0      loss: 0.88282510638237      Batch: 2 / 50
Epoch: 0      loss: 0.7357795933882395    Batch: 3 / 50
Epoch: 0      loss: 0.6318740993738174    Batch: 4 / 50
Epoch: 0      loss: 0.5590944945812225    Batch: 5 / 50
Epoch: 0      loss: 0.5022090847293535    Batch: 6 / 50
Epoch: 0      loss: 0.4735914958374841    Batch: 7 / 50
Epoch: 0      loss: 0.44649521447718143   Batch: 8 / 50
Epoch: 0      loss: 0.43000493943691254   Batch: 9 / 50
Epoch: 0      loss: 0.4143307253718376    Batch: 10 / 50
Epoch: 0      loss: 0.40478040819818323   Batch: 11 / 50
Epoch: 0      loss: 0.3893280141055584    Batch: 12 / 50
Epoch: 0      loss: 0.37526359122533065   Batch: 13 / 50
Epoch: 0      loss: 0.36377034336328506   Batch: 14 / 50
Epoch: 0      loss: 0.35560605227947234   Batch: 15 / 50
Epoch: 0      loss: 0.3447420885786414    Batch: 16 / 50
Epoch: 0      loss: 0.337461910703603     Batch: 17 / 50
Epoch: 0      loss: 0.3314126580953598    Batch: 18 / 50
Epoch: 0      loss: 0.3244257577155766    Batch: 19 / 50
Epoch: 0      loss: 0.3180706910789013    Batch: 20 / 50
Epoch: 0      loss: 0.31209689449696315   Batch: 21 / 50
Epoch: 0      loss: 0.307172148742459     Batch: 22 / 50
Epoch: 0      loss: 0.30204459312169446   Batch: 23 / 50
Epoch: 0      loss: 0.2972882265845935    Batch: 24 / 50
Epoch: 0      loss: 0.29515569865703584   Batch: 25 / 50
Epoch: 0      loss: 0.29039638661421263   Batch: 26 / 50
Epoch: 0      loss: 0.2856170579239174    Batch: 27 / 50
Epoch: 0      loss: 0.2822412784610476    Batch: 28 / 50
Epoch: 0      loss: 0.2793804905537901    Batch: 29 / 50
Epoch: 0      loss: 0.2749699801206589    Batch: 30 / 50
Epoch: 0      loss: 0.27374259454588734   Batch: 31 / 50
Epoch: 0      loss: 0.27215798012912273   Batch: 32 / 50
Epoch: 0      loss: 0.26776125169161596   Batch: 33 / 50
Epoch: 0      loss: 0.26484326623818455   Batch: 34 / 50
Epoch: 0      loss: 0.2613579558474677    Batch: 35 / 50
Epoch: 0      loss: 0.25862669613626266   Batch: 36 / 50
Epoch: 0      loss: 0.25642297598155767   Batch: 37 / 50
Epoch: 0      loss: 0.2544056867298327    Batch: 38 / 50
Epoch: 0      loss: 0.25322822500497866   Batch: 39 / 50
Epoch: 0      loss: 0.2505662743002176    Batch: 40 / 50
Epoch: 0      loss: 0.2475378720498666    Batch: 41 / 50
Epoch: 0      loss: 0.2467500212646666    Batch: 42 / 50
Epoch: 0      loss: 0.2444404613140174    Batch: 43 / 50
```

```
Epoch: 0    loss: 0.2417201455682516     Batch: 44 / 50
Epoch: 0    loss: 0.23945648719867071    Batch: 45 / 50
Epoch: 0    loss: 0.23716764135853105    Batch: 46 / 50
Epoch: 0    loss: 0.23470103645578344    Batch: 47 / 50
Epoch: 0    loss: 0.23200560361146927    Batch: 48 / 50
Epoch: 0    loss: 0.23003948981664618    Batch: 49 / 50
Epoch: 0    loss: 0.2283421379327774     Batch: 50 / 50
Epoch: 1    loss: 0.11526287347078323    Batch: 1 / 50
Epoch: 1    loss: 0.1123000793159008     Batch: 2 / 50
Epoch: 1    loss: 0.11510530610879262    Batch: 3 / 50
Epoch: 1    loss: 0.12348349392414093    Batch: 4 / 50
Epoch: 1    loss: 0.11996213644742966    Batch: 5 / 50
Epoch: 1    loss: 0.12341140334804852    Batch: 6 / 50
Epoch: 1    loss: 0.1273554829614503     Batch: 7 / 50
Epoch: 1    loss: 0.1267328504472971     Batch: 8 / 50
Epoch: 1    loss: 0.12658681472142538    Batch: 9 / 50
Epoch: 1    loss: 0.12623862326145172    Batch: 10 / 50
Epoch: 1    loss: 0.12302235852588307    Batch: 11 / 50
Epoch: 1    loss: 0.1229751743376255     Batch: 12 / 50
Epoch: 1    loss: 0.12017743002909881    Batch: 13 / 50
Epoch: 1    loss: 0.11661872640252113    Batch: 14 / 50
Epoch: 1    loss: 0.11626475205024084    Batch: 15 / 50
Epoch: 1    loss: 0.11451421305537224    Batch: 16 / 50
Epoch: 1    loss: 0.11284669488668442    Batch: 17 / 50
Epoch: 1    loss: 0.11280931325422393    Batch: 18 / 50
Epoch: 1    loss: 0.11264132629883916    Batch: 19 / 50
Epoch: 1    loss: 0.11161453649401665    Batch: 20 / 50
Epoch: 1    loss: 0.11016257071778887    Batch: 21 / 50
Epoch: 1    loss: 0.10881155695427548    Batch: 22 / 50
Epoch: 1    loss: 0.10716727894285451    Batch: 23 / 50
Epoch: 1    loss: 0.10591931361705065    Batch: 24 / 50
Epoch: 1    loss: 0.10511886656284332    Batch: 25 / 50
Epoch: 1    loss: 0.10333305181792149    Batch: 26 / 50
Epoch: 1    loss: 0.10183115124150559    Batch: 27 / 50
Epoch: 1    loss: 0.10141523355352026    Batch: 28 / 50
Epoch: 1    loss: 0.10086195517716737    Batch: 29 / 50
Epoch: 1    loss: 0.10004431915779909    Batch: 30 / 50
Epoch: 1    loss: 0.0989617497449921     Batch: 31 / 50
Epoch: 1    loss: 0.09814652579370886    Batch: 32 / 50
Epoch: 1    loss: 0.09680846401236275    Batch: 33 / 50
Epoch: 1    loss: 0.09705788532600683    Batch: 34 / 50
Epoch: 1    loss: 0.09667821611676897    Batch: 35 / 50
Epoch: 1    loss: 0.0962304582612382     Batch: 36 / 50
Epoch: 1    loss: 0.09517404205493026    Batch: 37 / 50
Epoch: 1    loss: 0.09459865730451911    Batch: 38 / 50
Epoch: 1    loss: 0.09410912113694045    Batch: 39 / 50
Epoch: 1    loss: 0.09325800891965627    Batch: 40 / 50
```

```
Epoch: 1    loss: 0.09245966938210697    Batch: 41 / 50
Epoch: 1    loss: 0.09198325056405295    Batch: 42 / 50
Epoch: 1    loss: 0.0914296057335166     Batch: 43 / 50
Epoch: 1    loss: 0.0910745867612687     Batch: 44 / 50
Epoch: 1    loss: 0.09026697029670079    Batch: 45 / 50
Epoch: 1    loss: 0.08963401607521203    Batch: 46 / 50
Epoch: 1    loss: 0.0890966775093941     Batch: 47 / 50
Epoch: 1    loss: 0.08819441264495254    Batch: 48 / 50
Epoch: 1    loss: 0.08789702322410077    Batch: 49 / 50
Epoch: 1    loss: 0.08720160283148289    Batch: 50 / 50
Epoch: 2    loss: 0.06101901829242706    Batch: 1 / 50
Epoch: 2    loss: 0.06046425551176071    Batch: 2 / 50
Epoch: 2    loss: 0.056909373650948204   Batch: 3 / 50
Epoch: 2    loss: 0.0534240510314703     Batch: 4 / 50
Epoch: 2    loss: 0.0514958806335926     Batch: 5 / 50
Epoch: 2    loss: 0.05020686984062195    Batch: 6 / 50
Epoch: 2    loss: 0.05190370923706463    Batch: 7 / 50
Epoch: 2    loss: 0.051511398050934076   Batch: 8 / 50
Epoch: 2    loss: 0.04967427129546801    Batch: 9 / 50
Epoch: 2    loss: 0.04846357777714729    Batch: 10 / 50
Epoch: 2    loss: 0.04913999072530053    Batch: 11 / 50
Epoch: 2    loss: 0.04817864826569954    Batch: 12 / 50
Epoch: 2    loss: 0.04715012443753389    Batch: 13 / 50
Epoch: 2    loss: 0.049051396282655854   Batch: 14 / 50
Epoch: 2    loss: 0.04806530624628067    Batch: 15 / 50
Epoch: 2    loss: 0.048913034377619624   Batch: 16 / 50
Epoch: 2    loss: 0.0483717210590839     Batch: 17 / 50
Epoch: 2    loss: 0.04794606752693653    Batch: 18 / 50
Epoch: 2    loss: 0.04758539521380475    Batch: 19 / 50
Epoch: 2    loss: 0.046518460661172864   Batch: 20 / 50
Epoch: 2    loss: 0.045866823267369045   Batch: 21 / 50
Epoch: 2    loss: 0.04539779421280731    Batch: 22 / 50
Epoch: 2    loss: 0.045130886623392936   Batch: 23 / 50
Epoch: 2    loss: 0.044788886016855635   Batch: 24 / 50
Epoch: 2    loss: 0.044762054681777956   Batch: 25 / 50
Epoch: 2    loss: 0.04431630885944916     Batch: 26 / 50
Epoch: 2    loss: 0.04388025485806995    Batch: 27 / 50
Epoch: 2    loss: 0.043518168053456714   Batch: 28 / 50
Epoch: 2    loss: 0.04344647878716732    Batch: 29 / 50
Epoch: 2    loss: 0.04284146806846063    Batch: 30 / 50
Epoch: 2    loss: 0.04257202334702015    Batch: 31 / 50
Epoch: 2    loss: 0.04233553429367021    Batch: 32 / 50
Epoch: 2    loss: 0.04200646332041784    Batch: 33 / 50
Epoch: 2    loss: 0.04137737621717593    Batch: 34 / 50
Epoch: 2    loss: 0.04165215811559132    Batch: 35 / 50
Epoch: 2    loss: 0.041159404338234      Batch: 36 / 50
Epoch: 2    loss: 0.040986978625123564   Batch: 37 / 50
```

```
Epoch: 2    loss: 0.04112718097473446    Batch: 38 / 50
Epoch: 2    loss: 0.040588897438003466   Batch: 39 / 50
Epoch: 2    loss: 0.040288581140339376   Batch: 40 / 50
Epoch: 2    loss: 0.04019155952988601    Batch: 41 / 50
Epoch: 2    loss: 0.03981536045847904    Batch: 42 / 50
Epoch: 2    loss: 0.0395634486231693     Batch: 43 / 50
Epoch: 2    loss: 0.039251921144453976   Batch: 44 / 50
Epoch: 2    loss: 0.03901228681206703    Batch: 45 / 50
Epoch: 2    loss: 0.03888732964253944    Batch: 46 / 50
Epoch: 2    loss: 0.03848908619677767    Batch: 47 / 50
Epoch: 2    loss: 0.03807279405494531    Batch: 48 / 50
Epoch: 2    loss: 0.03777327909305388    Batch: 49 / 50
Epoch: 2    loss: 0.03745937399566174    Batch: 50 / 50
```

b. Classification Report :

	precision	recall	f1-score	support
class0	1.00	0.99	0.99	137879
class1	0.74	0.82	0.77	5144
class2	0.66	0.82	0.73	2557
accuracy			0.98	145580
macro avg	0.80	0.87	0.83	145580
weighted avg	0.98	0.98	0.98	145580

2. Aspect Based Sentiment Analysis

   a. Training of the Model :

```
Epoch: 0    loss: 0.4587206542491913     Batch: 1 / 50
Epoch: 0    loss: 0.4208887815475464     Batch: 2 / 50
Epoch: 0    loss: 0.4192277789115906     Batch: 3 / 50
Epoch: 0    loss: 0.4137266278266907     Batch: 4 / 50
Epoch: 0    loss: 0.3905121684074402     Batch: 5 / 50
Epoch: 0    loss: 0.39265768726666767    Batch: 6 / 50
Epoch: 0    loss: 0.4006036009107317     Batch: 7 / 50
Epoch: 0    loss: 0.4302043318748474     Batch: 8 / 50
Epoch: 0    loss: 0.4210501280095842     Batch: 9 / 50
Epoch: 0    loss: 0.4160179942846298     Batch: 10 / 50
Epoch: 0    loss: 0.42520744421265344    Batch: 11 / 50
Epoch: 0    loss: 0.4251002346475919     Batch: 12 / 50
Epoch: 0    loss: 0.41790406979047334    Batch: 13 / 50
Epoch: 0    loss: 0.4254915841988155     Batch: 14 / 50
Epoch: 0    loss: 0.4295529961585999     Batch: 15 / 50
Epoch: 0    loss: 0.43131424859166145    Batch: 16 / 50
```

Epoch: 0	loss: 0.4253312542158015	Batch: 17 / 50
Epoch: 0	loss: 0.42610444459650254	Batch: 18 / 50
Epoch: 0	loss: 0.41843577435142115	Batch: 19 / 50
Epoch: 0	loss: 0.4102800667285919	Batch: 20 / 50
Epoch: 0	loss: 0.4021619444801694	Batch: 21 / 50
Epoch: 0	loss: 0.4044648625633933	Batch: 22 / 50
Epoch: 0	loss: 0.3990928310415019	Batch: 23 / 50
Epoch: 0	loss: 0.3982416975001494	Batch: 24 / 50
Epoch: 0	loss: 0.4015302240848541	Batch: 25 / 50
Epoch: 0	loss: 0.39495324801940185	Batch: 26 / 50
Epoch: 0	loss: 0.3935099967100002	Batch: 27 / 50
Epoch: 0	loss: 0.3936808295547962	Batch: 28 / 50
Epoch: 0	loss: 0.38795054883792485	Batch: 29 / 50
Epoch: 0	loss: 0.38558114965756735	Batch: 30 / 50
Epoch: 0	loss: 0.3895207797327349	Batch: 31 / 50
Epoch: 0	loss: 0.3875099243596196	Batch: 32 / 50
Epoch: 0	loss: 0.3854739991101352	Batch: 33 / 50
Epoch: 0	loss: 0.38809878685895133	Batch: 34 / 50
Epoch: 0	loss: 0.3861882780279432	Batch: 35 / 50
Epoch: 0	loss: 0.39147816515631145	Batch: 36 / 50
Epoch: 0	loss: 0.39886378678115636	Batch: 37 / 50
Epoch: 0	loss: 0.4020410344788903	Batch: 38 / 50
Epoch: 0	loss: 0.4022576847137549	Batch: 39 / 50
Epoch: 0	loss: 0.40113841369748116	Batch: 40 / 50
Epoch: 0	loss: 0.40260165639039946	Batch: 41 / 50
Epoch: 0	loss: 0.40276935128938585	Batch: 42 / 50
Epoch: 0	loss: 0.40019075953683186	Batch: 43 / 50
Epoch: 0	loss: 0.3970590809529478	Batch: 44 / 50
Epoch: 0	loss: 0.39914419386121963	Batch: 45 / 50
Epoch: 0	loss: 0.4007602573736854	Batch: 46 / 50
Epoch: 0	loss: 0.4015236167197532	Batch: 47 / 50
Epoch: 0	loss: 0.4052517314751943	Batch: 48 / 50
Epoch: 0	loss: 0.40502757381419746	Batch: 49 / 50
Epoch: 0	loss: 0.4039527624845505	Batch: 50 / 50
Epoch: 1	loss: 0.20115284621715546	Batch: 1 / 50
Epoch: 1	loss: 0.2601301297545433	Batch: 2 / 50
Epoch: 1	loss: 0.22347851594289145	Batch: 3 / 50
Epoch: 1	loss: 0.22880682721734047	Batch: 4 / 50
Epoch: 1	loss: 0.2239958643913269	Batch: 5 / 50
Epoch: 1	loss: 0.2217544143398603	Batch: 6 / 50
Epoch: 1	loss: 0.2280281079666955	Batch: 7 / 50
Epoch: 1	loss: 0.2267774473875761	Batch: 8 / 50
Epoch: 1	loss: 0.22661579814222124	Batch: 9 / 50
Epoch: 1	loss: 0.22303276509046555	Batch: 10 / 50

Epoch: 1	loss: 0.22333567115393552	Batch: 11 / 50
Epoch: 1	loss: 0.22186393414934477	Batch: 12 / 50
Epoch: 1	loss: 0.23321987459292778	Batch: 13 / 50
Epoch: 1	loss: 0.23717963376215526	Batch: 14 / 50
Epoch: 1	loss: 0.23687811593214672	Batch: 15 / 50
Epoch: 1	loss: 0.23555611167103052	Batch: 16 / 50
Epoch: 1	loss: 0.2370543979546603	Batch: 17 / 50
Epoch: 1	loss: 0.2408183308111297	Batch: 18 / 50
Epoch: 1	loss: 0.23670084068649694	Batch: 19 / 50
Epoch: 1	loss: 0.23888153284788133	Batch: 20 / 50
Epoch: 1	loss: 0.23865070797148205	Batch: 21 / 50
Epoch: 1	loss: 0.23302645642649045	Batch: 22 / 50
Epoch: 1	loss: 0.2301464696293292	Batch: 23 / 50
Epoch: 1	loss: 0.22712551491955915	Batch: 24 / 50
Epoch: 1	loss: 0.23046693742275237	Batch: 25 / 50
Epoch: 1	loss: 0.22911989516936815	Batch: 26 / 50
Epoch: 1	loss: 0.22565126695014812	Batch: 27 / 50
Epoch: 1	loss: 0.22844260984233447	Batch: 28 / 50
Epoch: 1	loss: 0.22952811419963837	Batch: 29 / 50
Epoch: 1	loss: 0.233581979572773	Batch: 30 / 50
Epoch: 1	loss: 0.2322936043623955	Batch: 31 / 50
Epoch: 1	loss: 0.23366463696584105	Batch: 32 / 50
Epoch: 1	loss: 0.23214630556829047	Batch: 33 / 50
Epoch: 1	loss: 0.23320080865831935	Batch: 34 / 50
Epoch: 1	loss: 0.23425585627555848	Batch: 35 / 50
Epoch: 1	loss: 0.23185382452276018	Batch: 36 / 50
Epoch: 1	loss: 0.23434018283276944	Batch: 37 / 50
Epoch: 1	loss: 0.23630439372439133	Batch: 38 / 50
Epoch: 1	loss: 0.23613893489042917	Batch: 39 / 50
Epoch: 1	loss: 0.236905150488019	Batch: 40 / 50
Epoch: 1	loss: 0.23769872690119395	Batch: 41 / 50
Epoch: 1	loss: 0.2413861116483098	Batch: 42 / 50
Epoch: 1	loss: 0.2402227531338847	Batch: 43 / 50
Epoch: 1	loss: 0.23980043015696786	Batch: 44 / 50
Epoch: 1	loss: 0.24180298116472032	Batch: 45 / 50
Epoch: 1	loss: 0.2411525346662687	Batch: 46 / 50
Epoch: 1	loss: 0.24198434073874292	Batch: 47 / 50
Epoch: 1	loss: 0.24421761681636175	Batch: 48 / 50
Epoch: 1	loss: 0.2450392258410551	Batch: 49 / 50
Epoch: 1	loss: 0.24241575792431833	Batch: 50 / 50
Epoch: 2	loss: 0.10508303344249725	Batch: 1 / 50
Epoch: 2	loss: 0.11742020398378372	Batch: 2 / 50
Epoch: 2	loss: 0.13472428421179453	Batch: 3 / 50
Epoch: 2	loss: 0.17332925274968147	Batch: 4 / 50

Epoch: 2	loss: 0.15041989982128143	Batch: 5 / 50
Epoch: 2	loss: 0.13749776780605316	Batch: 6 / 50
Epoch: 2	loss: 0.12908834431852614	Batch: 7 / 50
Epoch: 2	loss: 0.13149792328476906	Batch: 8 / 50
Epoch: 2	loss: 0.12492859860261281	Batch: 9 / 50
Epoch: 2	loss: 0.12746547311544418	Batch: 10 / 50
Epoch: 2	loss: 0.12861911410635168	Batch: 11 / 50
Epoch: 2	loss: 0.12329325452446938	Batch: 12 / 50
Epoch: 2	loss: 0.12878408684180334	Batch: 13 / 50
Epoch: 2	loss: 0.1265661349253995	Batch: 14 / 50
Epoch: 2	loss: 0.12707649519046146	Batch: 15 / 50
Epoch: 2	loss: 0.12457455741241574	Batch: 16 / 50
Epoch: 2	loss: 0.13054687792763991	Batch: 17 / 50
Epoch: 2	loss: 0.12924747417370477	Batch: 18 / 50
Epoch: 2	loss: 0.13048489391803741	Batch: 19 / 50
Epoch: 2	loss: 0.1371096722781658	Batch: 20 / 50
Epoch: 2	loss: 0.13561618221657618	Batch: 21 / 50
Epoch: 2	loss: 0.13126966865225273	Batch: 22 / 50
Epoch: 2	loss: 0.1347840651869774	Batch: 23 / 50
Epoch: 2	loss: 0.13269810813168684	Batch: 24 / 50
Epoch: 2	loss: 0.13052337408065795	Batch: 25 / 50
Epoch: 2	loss: 0.13306837528944016	Batch: 26 / 50
Epoch: 2	loss: 0.13313191797998217	Batch: 27 / 50
Epoch: 2	loss: 0.13372261290039336	Batch: 28 / 50
Epoch: 2	loss: 0.13260059598191032	Batch: 29 / 50
Epoch: 2	loss: 0.12987807877361773	Batch: 30 / 50
Epoch: 2	loss: 0.13043653616501438	Batch: 31 / 50
Epoch: 2	loss: 0.12944420904386789	Batch: 32 / 50
Epoch: 2	loss: 0.12779752966580968	Batch: 33 / 50
Epoch: 2	loss: 0.12893533717621775	Batch: 34 / 50
Epoch: 2	loss: 0.1278171497796263	Batch: 35 / 50
Epoch: 2	loss: 0.12875827867537737	Batch: 36 / 50
Epoch: 2	loss: 0.12739982768087774	Batch: 37 / 50
Epoch: 2	loss: 0.12549596809242902	Batch: 38 / 50
Epoch: 2	loss: 0.12327291883337192	Batch: 39 / 50
Epoch: 2	loss: 0.12282867943868041	Batch: 40 / 50
Epoch: 2	loss: 0.12469362621990646	Batch: 41 / 50
Epoch: 2	loss: 0.12515707695413203	Batch: 42 / 50
Epoch: 2	loss: 0.1267190671764141	Batch: 43 / 50
Epoch: 2	loss: 0.12853602548553186	Batch: 44 / 50
Epoch: 2	loss: 0.1308430124488142	Batch: 45 / 50
Epoch: 2	loss: 0.13182377904329612	Batch: 46 / 50
Epoch: 2	loss: 0.13226796044631206	Batch: 47 / 50
Epoch: 2	loss: 0.13293355074711144	Batch: 48 / 50

```
Epoch: 2      loss: 0.13310332162951938    Batch: 49 / 50
Epoch: 2      loss: 0.13385019175708293    Batch: 50 / 50
Epoch: 3      loss: 0.03555460274219513    Batch: 1 / 50
Epoch: 3      loss: 0.033838311210274696       Batch: 2 / 50
Epoch: 3      loss: 0.041034104923407234       Batch: 3 / 50
Epoch: 3      loss: 0.04319783300161362    Batch: 4 / 50
Epoch: 3      loss: 0.04569113403558731    Batch: 5 / 50
Epoch: 3      loss: 0.04402764203647772    Batch: 6 / 50
Epoch: 3      loss: 0.041394692180412154       Batch: 7 / 50
Epoch: 3      loss: 0.04734072904102504    Batch: 8 / 50
Epoch: 3      loss: 0.0494716918716828     Batch: 9 / 50
Epoch: 3      loss: 0.05483920108526945    Batch: 10 / 50
Epoch: 3      loss: 0.052895021201534706       Batch: 11 / 50
Epoch: 3      loss: 0.057741745840758085       Batch: 12 / 50
Epoch: 3      loss: 0.061899881093547895       Batch: 13 / 50
Epoch: 3      loss: 0.06893903136785541    Batch: 14 / 50
Epoch: 3      loss: 0.06847380362451076    Batch: 15 / 50
Epoch: 3      loss: 0.06838737719226629    Batch: 16 / 50
Epoch: 3      loss: 0.07116093891946708    Batch: 17 / 50
Epoch: 3      loss: 0.07079219580110577    Batch: 18 / 50
Epoch: 3      loss: 0.07175039078452085    Batch: 19 / 50
Epoch: 3      loss: 0.0706704898737371     Batch: 20 / 50
Epoch: 3      loss: 0.0742780373742183     Batch: 21 / 50
Epoch: 3      loss: 0.07462066369639202    Batch: 22 / 50
Epoch: 3      loss: 0.07834327957876351    Batch: 23 / 50
Epoch: 3      loss: 0.07613839923093717    Batch: 24 / 50
Epoch: 3      loss: 0.07575400114059448    Batch: 25 / 50
Epoch: 3      loss: 0.07390836590471175    Batch: 26 / 50
Epoch: 3      loss: 0.07212092368691056    Batch: 27 / 50
Epoch: 3      loss: 0.07267071466360774    Batch: 28 / 50
Epoch: 3      loss: 0.07266339428465941    Batch: 29 / 50
Epoch: 3      loss: 0.07224884952108065    Batch: 30 / 50
Epoch: 3      loss: 0.07273968285129916    Batch: 31 / 50
Epoch: 3      loss: 0.07144381105899811    Batch: 32 / 50
Epoch: 3      loss: 0.070188303788503      Batch: 33 / 50
Epoch: 3      loss: 0.06882345172412255    Batch: 34 / 50
Epoch: 3      loss: 0.06853793529527528    Batch: 35 / 50
Epoch: 3      loss: 0.0735846171155572     Batch: 36 / 50
Epoch: 3      loss: 0.07221801060478429    Batch: 37 / 50
Epoch: 3      loss: 0.0735221170379143     Batch: 38 / 50
Epoch: 3      loss: 0.07287491566668718    Batch: 39 / 50
Epoch: 3      loss: 0.07277853875420988    Batch: 40 / 50
Epoch: 3      loss: 0.07320935856096628    Batch: 41 / 50
Epoch: 3      loss: 0.07300208593230872    Batch: 42 / 50
```

```
Epoch: 3        loss: 0.07292721242925455    Batch: 43 / 50
Epoch: 3        loss: 0.07431330002675002    Batch: 44 / 50
Epoch: 3        loss: 0.07590581389764944    Batch: 45 / 50
Epoch: 3        loss: 0.07592297794864229    Batch: 46 / 50
Epoch: 3        loss: 0.0750292430612001     Batch: 47 / 50
Epoch: 3        loss: 0.07458549120929092    Batch: 48 / 50
Epoch: 3        loss: 0.07517794097716711    Batch: 49 / 50
Epoch: 3        loss: 0.074970090277493      Batch: 50 / 50
Epoch: 4        loss: 0.08716331422328949    Batch: 1 / 50
Epoch: 4        loss: 0.049507221672683954       Batch: 2 / 50
Epoch: 4        loss: 0.04723705258220434    Batch: 3 / 50
Epoch: 4        loss: 0.042465936159715056       Batch: 4 / 50
Epoch: 4        loss: 0.037061513774096964       Batch: 5 / 50
Epoch: 4        loss: 0.04142900789156556    Batch: 6 / 50
Epoch: 4        loss: 0.0396185659670404     Batch: 7 / 50
Epoch: 4        loss: 0.03727939247619361    Batch: 8 / 50
Epoch: 4        loss: 0.03470168190283908    Batch: 9 / 50
Epoch: 4        loss: 0.032932707015424965       Batch: 10 / 50
```

b. Accuracy :

```
Accuracy is 0.7749287749287749
```