Experiment 1
KDTree
Point1:
-5.420458778974271,0.7891803562243134,-0.3973486218703048
-5.429850154613408,0.8075670478362598,-0.3982168226988382
-5.43030556398262,0.8246710769927127,-0.3984338736632657
-5.432677820578597,0.8420909833742529,-0.3987956432309413
-5.415942549526783,0.7715622302147948,-0.3968421613600826
Point2:
-12.992860583393504,5.051138148093654,0.7622934861842156
-12.976373725118926,5.090611379773172,0.7622388885867976
Point3:
-36.10818686248445,14.241618397722052,4.293473761897471
Point4:
3.106996584743287,0.0607965822112821,0.39820190007320806
3.1121272286089696,0.0513459811348819,0.3988373764321324
3.123179921500925,0.041944387155322,0.4002354917039907
3.1233786019830654,0.0227801237087123,0.4002354923207727
3.1274271451816897,0.0036195964459265,0.4007438901352219
3.1431306038656457,0.032567946655484,0.4027774803812885
3.124626229458665,0.071407284130788,0.4308557147843563
3.101060042170619,0.0613504651643957,0.4275782041593502
3.102224266499409,0.0518528106206318,0.4277147594345744
3.1074370070938127,0.0328693350571258,0.4283975616247083
3.110494894440637,0.0233580135464159,0.4288072530996791
3.12444583809515,0.0042909825235033,0.4307191323087426
3.127132326652067,0.0426729987558792,0.4311288249443483
3.1491863135474705,0.0139866281830143,0.4341331975609065
3.120500565609992,0.0626817334571532,0.4610553779823442
3.1325477563686954,0.0533098761028178,0.4628090065256689
3.135663991597881,0.0437404978846847,0.4632473987090112
Point5:
11.597053489523276,3.032865894391464,1.8696242228185609
11.580473933555549,2.9906018684790574,1.8654633424019456
Point6:
14.159820885717384,4.680702456874969,-0.1337915844837233
14.180766680737111,4.639415392714257,-0.1338543779659772

Linear
Point1:
-5.415942549526783,0.7715622302147948,-0.3968421613600826
-5.420458778974271,0.7891803562243134,-0.3973486218703048
-5.429850154613408,0.8075670478362598,-0.3982168226988382
-5.43030556398262,0.8246710769927127,-0.3984338736632657
-5.432677820578597,0.8420909833742529,-0.3987956432309413
Point2:
-12.992860583393504,5.051138148093654,0.7622934861842156
-12.976373725118926,5.090611379773172,0.7622388885867976
Point3:
-36.10818686248445,14.241618397722052,4.293473761897471
Point4:
3.120500565609992,0.0626817334571532,0.4610553779823442
3.1325477563686954,0.0533098761028178,0.4628090065256689
3.135663991597881,0.0437404978846847,0.4632473987090112
3.124626229458665,0.071407284130788,0.4308557147843563
3.101060042170619,0.0613504651643957,0.4275782041593502
3.102224266499409,0.0518528106206318,0.4277147594345744
3.127132326652067,0.0426729987558792,0.4311288249443483
3.1074370070938127,0.0328693350571258,0.4283975616247083
3.110494894440637,0.0233580135464159,0.4288072530996791
3.1491863135474705,0.0139866281830143,0.4341331975609065
3.12444583809515,0.0042909825235033,0.4307191323087426
3.106996584743287,0.0607965822112821,0.39820190073208006
3.1121272286089696,0.0513459811348819,0.3988373764321324
3.123179921500925,0.041944387155322,0.4002354917039907
3.1431306038656457,0.032567946655484,0.4027774803812885
3.1233786019830654,0.0227801237087123,0.4002354923207727
3.1274271451816897,0.0036195964459265,0.4007438901352219
Point5:
11.597053489523276,3.032865894391464,1.8696242228185609
11.580473933555549,2.9906018684790574,1.8654633424019456
Point6:
14.159820885717384,4.680702456874969,-0.1337915844837233
14.180766680737111,4.639415392714257,-0.1338543779659772

The results I obtained through KDTree were the same as the results I obtained through Linear. This was confirmed through the tests I ran in the Test.java file, where I checked if all the x, y and z values that exist in the "kd" result files also exist in the "lin" result files.

Experiment 2

File	Linear	KDTree
Point_Cloud_1.csv	0.01573875126560913ms	0.0027101204859939234ms
Point_Cloud_2.csv	0.016935459268004847ms	0.003742654466745311ms
Point_Cloud_3.csv	0.015020253433761687ms	0.002950943066016857ms

It was expected for KDTree to run faster than linear. From the results obtained, it can be observed that the KDTree method has a faster runtime compared to the linear method for all three files, thus the results were what I expected.

Experiment 3
Eps = 1.2, MinPts = 10

File	Linear	KDTree
Point_Cloud_1.csv	3589ms	1809ms
Point_Cloud_2.csv	9757ms	5008ms
Point_Cloud_3.csv	7162ms	4458ms

It was expected for KDTree to run faster than linear. The results obtained prove that KDTree had a faster overall runtime compared to Linear for all three files, thus the results were what I expected.