Screenshots of the program:

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Yahia@DESKTOP-HHL30LE MINGW64 ~/Desktop/code  2 (main)
$ ./main.exe
The center of the A cluster is(79.9166,80.127)
The center of the B cluster is (31.2084,30.053)
The point (15.3156,18.7512) with index 0 belongs to the B cluster
The point (72.9412,54.7078) with index 1 belongs to the A cluster
The point (40.4115,5.80309) with index 2 belongs to the B cluster
The point (8.07031,25.5238) with index 3 belongs to the B cluster
The point (29.1392,81.7057) with index 4 belongs to the A cluster
The point (37.2687,12.7584) with index 5 belongs to the B cluster
The point (61.3094,13.376) with index 6 belongs to the B cluster
The point (33.2069,75.6085) with index 7 belongs to the B cluster
The point (25.2716,80.5286) with index 8 belongs to the B cluster
The point (34.9899,74.5271) with index 9 belongs to the B cluster
The point (73.8081,99.8347) with index 10 belongs to the A cluster
The point (5.0145,32.5546) with index 11 belongs to the B cluster
The point (74.5619,40.5391) with index 12 belongs to the A cluster
The point (36.5236,94.5639) with index 13 belongs to the A cluster
The point (76.6987,61.3529) with index 14 belongs to the A cluster
The point (17.2958,27.994) with index 15 belongs to the B cluster
The point (63.02,30.9542) with index 16 belongs to the B cluster
The point (82.4972,61.2282) with index 17 belongs to the A cluster
The point (59.277,66.9774) with index 18 belongs to the A cluster
The point (7.11356,58.1318) with index 19 belongs to the B cluster
```

```
Yahia@DESKTOP-HHL30LE MINGW64 ~/Desktop/code  2 (main)
$ ./main.exe
The center of the A cluster is(79.8195,80.1481)
The center of the B cluster is (29.7337,29.9752)
The point (55.4036,79.7806) with index 0 belongs to the A cluster
The point (15.1126,77.5452) with index 1 belongs to the B cluster
The point (81.0012,62.7619) with index 2 belongs to the A cluster
The point (15.4228,33.088) with index 3 belongs to the B cluster
The point (77.1857,54.0004) with index 4 belongs to the A cluster
The point (67.6588,92.6359) with index 5 belongs to the A cluster
The point (77.5307,72.8542) with index 6 belongs to the A cluster
The point (85.956,74.6228) with index 7 belongs to the A cluster
The point (91.6356,33.2388) with index 8 belongs to the A cluster
The point (72.9151,25.6543) with index 9 belongs to the B cluster
The point (53.9656,51.478) with index 10 belongs to the B cluster
The point (62.9823,69.7462) with index 11 belongs to the A cluster
The point (97.9618,63.3157) with index 12 belongs to the A cluster
The point (48.1845,25.4485) with index 13 belongs to the B cluster
The point (6.49892,11.9147) with index 14 belongs to the B cluster
The point (91.1022,76.3623) with index 15 belongs to the A cluster
The point (62.3415,15.9592) with index 16 belongs to the B cluster
The point (22.3811,27.907) with index 17 belongs to the B cluster
The point (59.5553,69.6448) with index 18 belongs to the A cluster
The point (67.6849,50.9445) with index 19 belongs to the A cluster
```

```
Yahia@DESKTOP-HHL3OLE MINGW64 ~/Desktop/code  2 (main)
$ ./main.exe
The center of the A cluster is(79.993,79.9374)
The center of the B cluster is (30.4936,30.24)
The point (70.0304,40.7768) with index 0 belongs to the A cluster
The point (19.6731,77.2089) with index 1 belongs to the B cluster
The point (16.4985,6.68447) with index 2 belongs to the B cluster
The point (38.1965,91.2297) with index 3 belongs to the A cluster
The point (25.6282,90.8789) with index 4 belongs to the A cluster
The point (80.4416,41.3596) with index 5 belongs to the A cluster
The point (5.69872,96.1527) with index 6 belongs to the B cluster
The point (17.5654,52.9073) with index 7 belongs to the B cluster
The point (31.8993,11.1087) with index 8 belongs to the B cluster
The point (48.7817,30.7715) with index 9 belongs to the B cluster
The point (69.5027,92.4909) with index 10 belongs to the A cluster
The point (38.6546,44.3371) with index 11 belongs to the B cluster
The point (18.5975,77.8729) with index 12 belongs to the B cluster
The point (38.4313,10.4071) with index 13 belongs to the B cluster
The point (59.5843,61.0485) with index 14 belongs to the A cluster
The point (94.2885,90.3658) with index 15 belongs to the A cluster
The point (91.1631,99.9188) with index 16 belongs to the A cluster
The point (57.9752,35.0363) with index 17 belongs to the B cluster
The point (45.0417,44.2792) with index 18 belongs to the B cluster
The point (67.882,33.4591) with index 19 belongs to the B cluster
```

Analysis

-Created a .h file

-Build the prototype of the point class and the functions "Center" and "DetermineCenter"

-Created the assignment_2.cpp file

-defined the class and the functions

-made main.cpp file

-made code that declares 3 pointer dynamic arrays of type point

- In the assignment PDF it was not clarified whether the points should be decimal or integers.However, since the template of the class had variables X and Y as float numbers I understood that I should make an algorithm that can generate random float numbers.
I used the internet to search for such an algorithm and used information inside this stackoverflow thread :
https://stackoverflow.com/questions/686353/random-float-number-generation.

-created for loops that assign the values of the elements in the array to random numbers ( that can theoretically either be integers or floats but practically are almost always floats as there are more float numbers than integers) in the specified ranges

-The program ends with determining which cluster does the elements of array P belongs to