University Of Barishal

Project on Analysis of plant population ecology

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Computer Fundamentals and office Applications

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Project Data-

c	Species	Location	Population Count	Growth Stage	Average Height (cm)	Soil Type	Weather Condition
1	Species A	Forest B	204	Seedling	57.34	Silty	Cloudy
2	Species C	Grassland	215	Seedling	120.81	Loamy	Cloudy
3	Species A	Desert	311	Mature	101.54	Clay	Windy
4	Species C	Desert	78	Seedling	217.13	Peaty	Cloudy
5	Species D	Forest A	333	Mature	197.74	Clay	Foggy
6	Species B	Forest A	420	Sapling	146.08	Silty	Foggy
7	Species E	Wetland	160	Mature	215.22	Sandy	Sunny
8	Species B	Forest B	404	Mature	278.29	Peaty	Rainy
9	Species C	Wetland	200	Mature	114.33	Silty	Windy
10	Species E	Grassland	457	Seedling	158.18	Silty	Rainy
11	Species E	Forest A	181	Mature	203.09	Silty	Rainy
12	Species B	Grassland	127	Mature	229.78	Peaty	Foggy
13	Species E	Wetland	472	Seedling	142.59	Silty	Foggy
14	Species B	Forest A	243	Mature	265.46	Clay	Foggy
15	Species C	Grassland	136	Mature	129.29	Clay	Windy
16	Species A	Wetland	426	Seedling	120.61	Clay	Sunny
17	Species D	Wetland	183	Mature	57.12	Loamy	Foggy
18	Species E	Forest B	402	Mature	225.97	Loamy	Windy
19	Species B	Grassland	189	Sapling	57.83	Peaty	Rainy

20	Species E	Forest A	281	Seedling	94.23	Peaty	Cloudy
21	Species B	Forest A	41	Sapling	245.54	Silty	Cloudy
22	Species A	Grassland	460	Mature	78.59	Sandy	Windy
23	Species A	Wetland	470	Seedling	216.47	Silty	Windy
24	Species A	Desert	311	Seedling	15.61	Loamy	Foggy
25	Species A	Grassland	360	Seedling	103.32	Sandy	Windy
26	Species A	Forest B	459	Mature	80.56	Loamy	Foggy
27	Species C	Forest B	352	Mature	236.22	Loamy	Rainy
28	Species B	Wetland	61	Sapling	246.54	Clay	Sunny
29	Species D	Desert	43	Sapling	221.11	Clay	Foggy
30	Species D	Desert	385	Sapling	169.07	Silty	Windy
31	Species E	Desert	457	Sapling	262.23	Loamy	Foggy
32	Species B	Wetland	414	Mature	141.91	Clay	Cloudy
33	Species E	Forest B	321	Sapling	148.65	Loamy	Windy
34	Species D	Forest A	200	Sapling	84.29	Clay	Foggy
35	Species D	Forest A	373	Sapling	277.77	Clay	Foggy
36	Species A	Forest B	309	Mature	227.93	Clay	Foggy
37	Species D	Desert	230	Seedling	196.48	Sandy	Sunny
38	Species E	Wetland	364	Seedling	218.26	Silty	Cloudy
39	Species B	Wetland	195	Sapling	244.79	Loamy	Windy
40	Species D	Desert	25	Seedling	205.58	Peaty	Sunny
41	Species A	Wetland	164	Mature	22.08	Clay	Windy
42	Species C	Wetland	215	Seedling	92.86	Loamy	Cloudy
43	E	Desert	104	Sapling	181.87	Clay	Sunny

44	Species D	Forest B	467	Mature	97.86	Silty	Cloudy
45	Species B	Wetland	43	Mature	206.39	Sandy	Windy
46	Species D	Forest B	441	Mature	17.01	Peaty	Foggy
47	Species D	Grassland	45	Sapling	216.86	Clay	Windy
48	Species E	Forest B	442	Mature	212.74	Clay	Sunny
49	Species C	Grassland	66	Seedling	178.27	Clay	Sunny

1.1 Question-

1. What is the average plant growth for each growth stage across all locations?
2. Which species has the highest population density in different locations?
3. Which soil type has the highest plant population?
4. How does plant growth stage vary by location and weather condition?
5. Which weather condition results in the highest average plant height across all plant locations?
6. For each plant location , what is the total population count for the plants in the “mature” growth stage and What percentage of the total population does this represent?
7. Which soil type has the highest average plant height in locations that experienced Rainy weather conditions and how does this compare to average height in Sunny conditions?

1.1.1 1.What is the average plant growth for each growth stage across all locations?

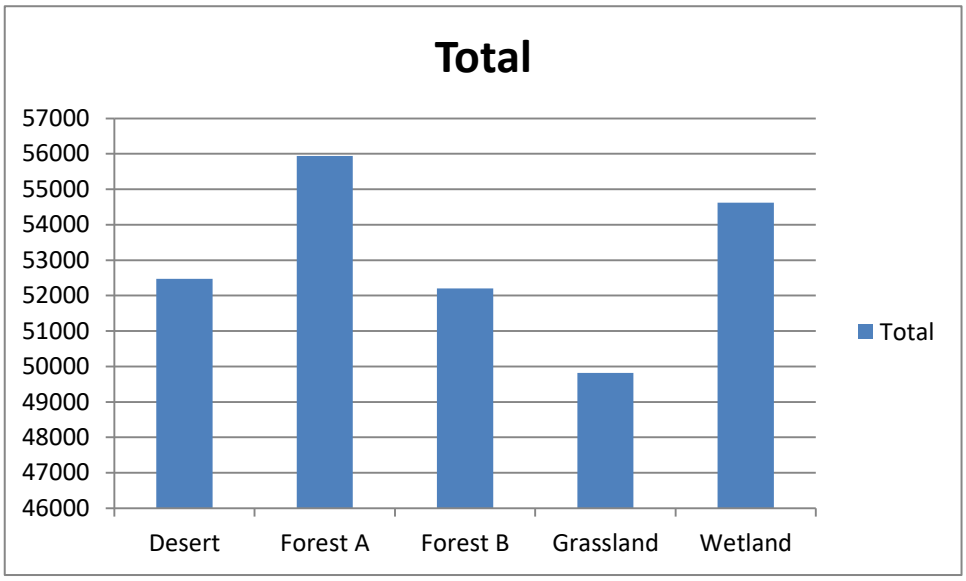
Row Labels	Average of Average Height (cm)
Mature	153.0103779
Sapling	154.1397297
Seedling	151.9180186
Grand Total	**153.03362**

Summary
In sapling location the average plant height is highest
In seedling the average plant height is lowest.

1.1.2 Which species has the highest population density in different locations?

Row Labels	Sum of Population Count
Desert	52470
Forest A	55936
Forest B	52205
Grassland	49814
Wetland	54619

Grand Total	**265044**



Summary-

Forest A has the highest population and Grassland has the lowest population.

1.1.3 Which soil type has the highest plant population?

Row Labels	Sum of Population Count
Clay	60223
Loamy	50515
Peaty	48348
Sandy	51804

Silty	54154
Grand Total	**265044**

Summary-

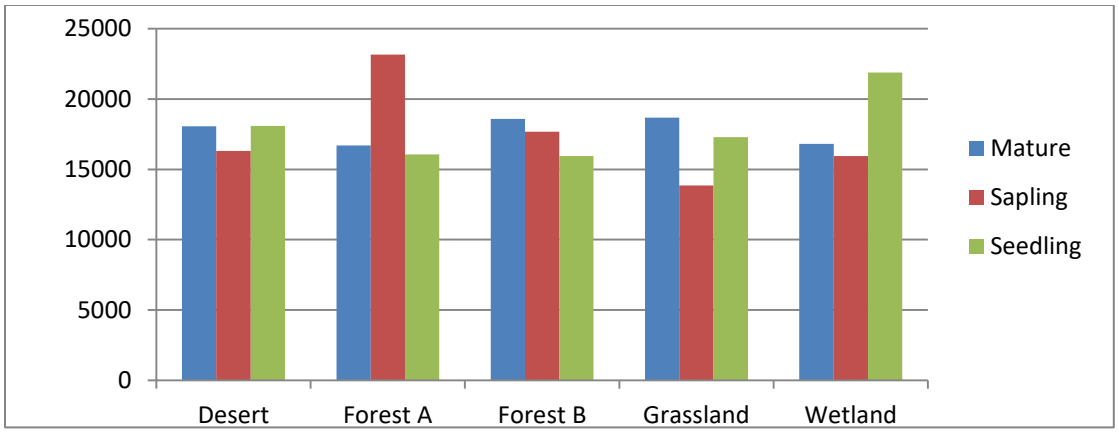
In clay type of soil plant population is very large that means this location is the most suitable for plant growth.

In peaty location plant population is very less that means it is not suitable for plant growth.

1.1.4 How does plant growth stage vary by location and weather condition?

Weather Condition	(All)

Sum of Population Count	**Column Labels**			
Row Labels	**Mature**	**Sapling**	**Seedling**	**Grand Total**
Desert	18069	16315	18086	52470
Forest A	16703	23165	16068	55936
Forest B	18590	17674	15941	52205
Grassland	18685	13846	17283	49814
Wetland	16805	15939	21875	54619
Grand Total	**88852**	**86939**	**89253**	**265044**

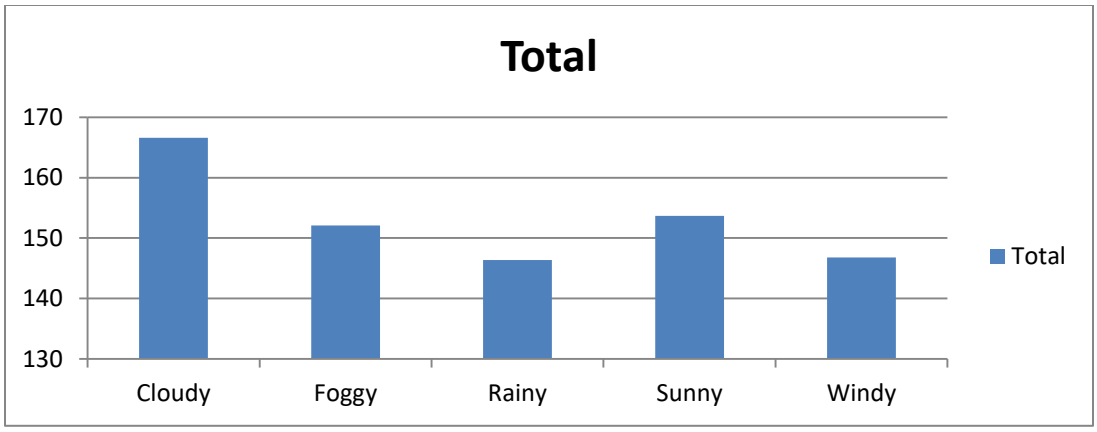


Summary-

Desert: The populations across the three growth stages (Mature, Sapling, Seedling) are quite similar, with no significant difference.
Forest A: Saplings have the highest population, followed by Mature plants, and Seedlings have the lowest population.
Forest B: The populations of the three growth stages are close to each other, with a slight edge for Mature plants, and Seedlings slightly lagging behind.
Grassland: Mature plants have the largest population, with Saplings and Seedlings having similar, slightly lower populations.
Wetland: Seedlings have the largest population, followed by Mature plants, with Saplings having the lowest.

1.1.5 Which weather condition results in the highest average plant height across all plant locations?

Row Labels	Average of Average Height (cm)
Cloudy	166.6079793
Foggy	152.0665909
Rainy	146.3853591
Sunny	153.6673575
Windy	146.8078873
Grand Total	**153.03362**



Summary-

Cloudy: The highest average height, close to 170 units.

Foggy: A moderate average height, slightly below 160 units.

Rainy: The lowest average height, slightly above 140 units.

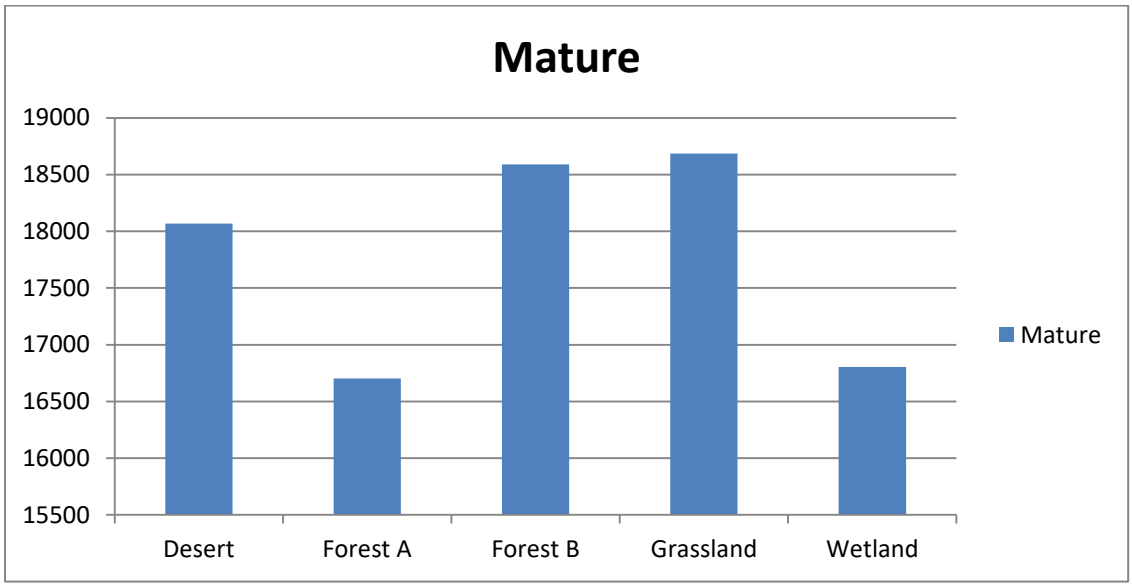
Sunny: The average height is higher than Rainy and Foggy conditions, but below Cloudy, around 150 units.

Windy: Similar to Rainy conditions, slightly above 140 units, showing one of the lower averages.

Overall, the chart suggests that plants (or objects being measured) tend to have greater heights in Cloudy conditions, while Rainy and Windy conditions show lower average heights.

1.1.6 For each plant location , what is the total population count for the plants in the "mature" growth stage and What percentage of the total population does this represent?

Sum of Population Count	Column Labels	
Row Labels	**Mature**	**Grand Total**
Desert	18069	18069
Forest A	16703	16703
Forest B	18590	18590
Grassland	18685	18685
Wetland	16805	16805
Grand Total	**88852**	**88852**



Summary-

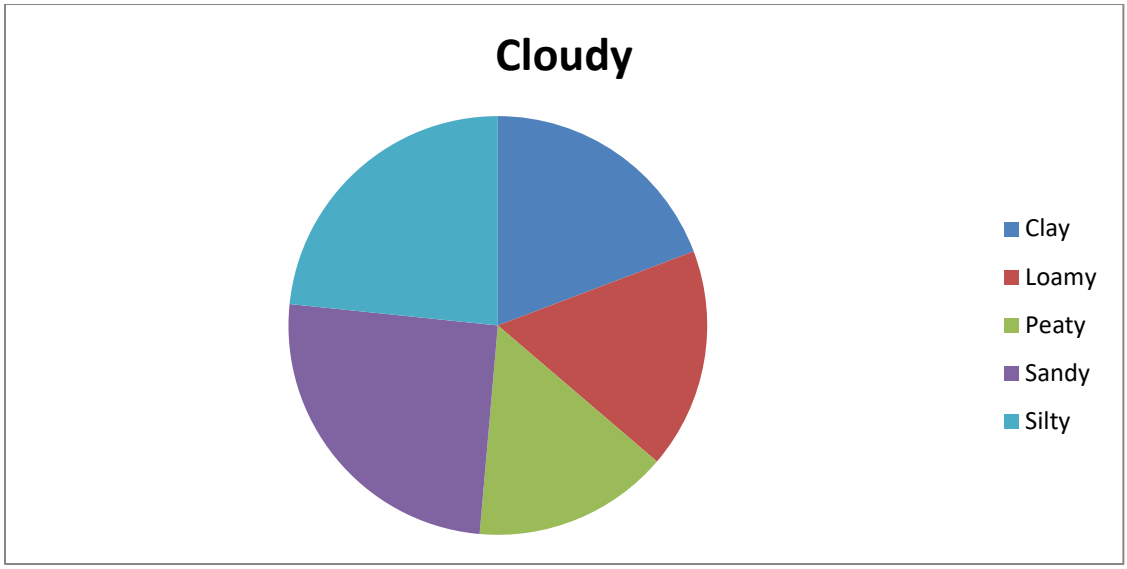
Desert: 18,069 mature individuals
Forest A: 16,703 mature individuals
Forest B: 18,590 mature individuals
Grassland: 18,685 mature individuals
Wetland: 16,805 mature individuals

Mature plant population presents in Grassland Location.

1.1.7 Which soil type has the highest average plant height in locations that experienced Rainy weather conditions and how does this compare to average height in Sunny conditions?

Location	(Multiple Items)

Sum of Average Height (cm)	Column Labels					
Row Labels	**Cloudy**	**Foggy**	**Rainy**	**Sunny**	**Windy**	**Grand Total**
Clay	1940.11	2578.8	2544.6	3720.11	3784.47	14568.09
Loamy	1715.58	3022.4	1267.84	2014.87	1728.86	9749.55
Peaty	1525.73	3029.28	2133.88	2232.17	3089.15	12010.21
Sandy	2545.13	2916.97	1300.22	1803.89	1793.54	10359.75
Silty	2356.03	2988.57	2469.97	1732.93	2188.35	11735.85
Grand Total	**10082.58**	**14536.02**	**9716.51**	**11503.97**	**12584.37**	**58423.45**



Summary-

Clay: The largest segment, represented in blue.

Loamy: The second largest, represented in red.

Peaty: A moderate segment, represented in green.

Sandy: A smaller portion, represented in purple.

Silty: Another moderate segment, represented in cyan.

Each soil type contributes differently to the total average height under cloudy conditions, with Clay having the largest share.

2 Conclusion-

The pivot table provides a detailed breakdown of plant populations across different regions and growth stages

Regional Population Distribution:

Desert: Despite its harsh environment, the Desert has a considerable plant population of 18,069 mature individuals, demonstrating that some species are well-adapted to arid conditions.

Forests (A & B): Forest regions show a robust plant population, with Forest B slightly outnumbering Forest A. This may reflect a difference in resource availability or species diversity between the two forest ecosystems.

Grassland: With 18,685 mature plants, Grasslands support a large population, suggesting that they are highly productive ecosystems capable of sustaining substantial plant life.

Wetland: The Wetland supports 16,805 mature individuals, indicating a unique habitat where certain plant species thrive, especially those adapted to waterlogged conditions.

Growth Stage Insights:

Mature Stage Dominance: The pivot table emphasizes the dominance of mature plants in all regions. This could indicate stable ecosystems where plants have successfully reached maturity.

Variation by Ecosystem: Each ecosystem shows variation in population sizes, but no region falls significantly behind, indicating a balance in ecological support for plant life across these environments.

Total Population:

3 **Across all regions and ecosystems, the total plant population for mature individuals is 88,852. This high number suggests that these ecosystems are generally healthy and capable of supporting large numbers of mature plants, which are crucial for maintaining ecological stability and supporting other species.**

4 **This pivot table highlights the resilience and adaptability of plants in different ecological conditions and provides insights into population dynamics across ecosystems.**