

Notebook for transforming raw cpdata to Mergable data

Filter cpdata.csv to MergeFileCrop.cv

Filter fertilizer.csv to MergerFileFert.csv

```
In [1]: import pandas as pd
```

```
In [2]: # Reading the data

crop_data_path = '../Data-raw/cpdata.csv'
fertilizer_data_path = '../Data-raw/Fertilizer.csv'

crop = pd.read_csv(crop_data_path)
fert = pd.read_csv(fertilizer_data_path)
```

```
In [3]: crop.head()
```

```
Out[3]:
```

	temperature	humidity	ph	rainfall	label
0	20.879744	82.002744	6.502985	202.935536	rice
1	21.770462	80.319644	7.038096	226.655537	rice
2	23.004459	82.320763	7.840207	263.964248	rice
3	26.491096	80.158363	6.980401	242.864034	rice
4	20.130175	81.604873	7.628473	262.717340	rice

```
In [4]: fert.head()
```

```
Out[4]:
```

	Unnamed: 0	Crop	N	P	K	pH
0	0	Rice	80	40	40	5.5
1	1	Jowar(Sorghum)	80	40	40	5.5
2	2	Barley(JAV)	70	40	45	5.5
3	3	Maize	80	40	20	5.5
4	4	Ragi(naachnnii)	50	40	20	5.5

```
In [5]: # Function for lowering the cases
def change_case(i):
    i = i.replace(" ", "")
    i = i.lower()
    return i
```

```
In [6]: fert['Crop'] = fert['Crop'].apply(change_case)
crop['label'] = crop['label'].apply(change_case)
```

In [7]:

```
#make some changes in ferttilizer dataset

fert['Crop'] = fert['Crop'].replace('mungbeans','mungbean')
fert['Crop'] = fert['Crop'].replace('lentils(masoordal)','lentil')
fert['Crop'] = fert['Crop'].replace('pigeonpeas(toordal)','pigeonpeas')
fert['Crop'] = fert['Crop'].replace('mothbean(matki)','mothbeans')
fert['Crop'] = fert['Crop'].replace('chickpeas(channa)','chickpea')
```

In [8]:

```
crop.head()
```

Out[8]:

	temperature	humidity	ph	rainfall	label
0	20.879744	82.002744	6.502985	202.935536	rice
1	21.770462	80.319644	7.038096	226.655537	rice
2	23.004459	82.320763	7.840207	263.964248	rice
3	26.491096	80.158363	6.980401	242.864034	rice
4	20.130175	81.604873	7.628473	262.717340	rice

In [9]:

```
crop.tail()
```

Out[9]:

	temperature	humidity	ph	rainfall	label
3095	25.287846	89.636679	6.765095	58.286977	watermelon
3096	26.638386	84.695469	6.189214	48.324286	watermelon
3097	25.331045	84.305338	6.904242	41.532187	watermelon
3098	26.897502	83.892415	6.463271	43.971937	watermelon
3099	26.986037	89.413849	6.260839	58.548767	watermelon

In [10]:

```
crop_names = crop['label'].unique()
crop_names
```

Out[10]:

```
array(['rice', 'wheat', 'mungbean', 'tea', 'millet', 'maize', 'lentil',
       'jute', 'coffee', 'cotton', 'groundnut', 'peas', 'rubber',
       'sugarcane', 'tobacco', 'kidneybeans', 'mothbeans', 'coconut',
       'blackgram', 'adzukibeans', 'pigeonpeas', 'chickpea', 'banana',
       'grapes', 'apple', 'mango', 'muskmelon', 'orange', 'papaya',
       'pomegranate', 'watermelon'], dtype=object)
```

In [11]:

```
fert.head()
```

Out[11]:

	Unnamed: 0	Crop	N	P	K	pH
0	0	rice	80	40	40	5.5
1	1	jowar(sorghum)	80	40	40	5.5
2	2	barley(jav)	70	40	45	5.5
3	3	maize	80	40	20	5.5
4	4	ragi(naachnnii)	50	40	20	5.5

```
In [12]: del fert['Unnamed: 0']
```

```
In [13]: crop_names_from_fert = fert['Crop'].unique()  
crop_names_from_fert
```

```
Out[13]: array(['rice', 'jowar(sorghum)', 'barley(jav)', 'maize',  
               'ragi(naachnnii)', 'chickpea', 'frenchbeans(farasbi)',  
               'favabeans(papdi-val)', 'limabeans(pavta)', 'clusterbeans(gavar)',  
               'soyabean', 'blackeyedbeans(chawli)', 'kidneybeans', 'pigeonpeas',  
               'mothbeans', 'mungbean', 'greenpeas', 'horsegram(kulthi)',  
               'blackgram', 'rapeseed(mohri)', 'corianderseeds', 'mustardseeds',  
               'sesameseed', 'cuminseeds', 'lentil', 'brinjal', 'beetroot',  
               'bittergourd', 'bottlegourd', 'capsicum', 'cabbage', 'carrot',  
               'cauliflower', 'cucumber', 'corianderleaves', 'curryleaves',  
               'drumstick-moringa', 'chili', 'ladyfinger', 'mushroom', 'onion',  
               'potato', 'pumpkin', 'radish', 'olive', 'sweetpotato',  
               'fenugreekleaf(methi)', 'spinach', 'ridgegourd',  
               'gooseberry(amlā)', 'jambun(syzygiumcumini)',  
               'ziziphusmauritiana(bor)', 'garciniaindica(kokam)', 'tamarind',  
               'tapioca(suran)', 'garlic', 'lemon', 'tomato', 'ashgourd',  
               'pineapple', 'pomegranate', 'banana', 'mango', 'grapes',  
               'jackfruit', 'guava', 'watermelon', 'muskmelon', 'apricot',  
               'apple', 'chickoo', 'custardapple', 'dates', 'figs', 'orange',  
               'papaya', 'aniseed', 'asafoetida', 'bayleaf', 'blackpepper',  
               'cardamom', 'cinnamon', 'cloves', 'jaiphal(nutmeg)', 'ginger',  
               'turmeric', 'cashewnuts', 'raisins', 'coconut', 'almondnut',  
               'arecanut', 'pistachionut', 'lemongrass', 'cotton', 'jute',  
               'coffee', 'sunflower'], dtype=object)
```

```
In [14]: for i in crop_names_from_fert:  
         print(crop[crop['label'] == i])
```

	temperature	humidity	ph	rainfall	label
0	20.879744	82.002744	6.502985	202.935536	rice
1	21.770462	80.319644	7.038096	226.655537	rice
2	23.004459	82.320763	7.840207	263.964248	rice
3	26.491096	80.158363	6.980401	242.864034	rice
4	20.130175	81.604873	7.628473	262.717340	rice
..
95	22.683191	83.463583	6.604993	194.265172	rice
96	21.533463	82.140041	6.500343	295.924880	rice
97	21.408658	83.329319	5.935745	287.576694	rice
98	26.543481	84.673536	7.072656	183.622266	rice
99	23.359054	83.595123	5.333323	188.413665	rice

[100 rows x 5 columns]

Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

	temperature	humidity	ph	rainfall	label
500	22.613600	63.690706	5.749914	87.759539	maize
501	26.100184	71.574769	6.931757	102.266244	maize
502	23.558821	71.593514	6.657965	66.719955	maize
503	19.972160	57.682729	6.596061	60.651715	maize
504	18.478913	62.695039	5.970458	65.438354	maize
..
595	18.928519	72.800861	6.158860	82.341629	maize
596	23.305468	63.246480	6.385684	108.760300	maize

```
597    18.748267    62.498785    6.417820    70.234016    maize
598    19.742133    59.662631    6.381202    65.508614    maize
599    25.730444    70.747393    6.877869    98.737713    maize
```

[100 rows x 5 columns]

Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

	temperature	humidity	ph	rainfall	label
2100	17.024985	16.988612	7.485996	88.551231	chickpea
2101	19.020613	17.131591	6.920251	79.926981	chickpea
2102	17.887765	15.405897	5.996932	68.549329	chickpea
2103	18.868056	15.658092	6.391174	88.510490	chickpea
2104	18.369526	19.563810	7.152811	79.263577	chickpea
...
2195	17.341502	18.756263	8.861480	67.954543	chickpea
2196	17.437327	14.338474	7.861128	73.092670	chickpea
2197	18.897802	19.761829	7.452671	69.095125	chickpea
2198	18.591908	14.779596	7.168096	89.609825	chickpea
2199	18.315615	15.361435	7.263119	81.787105	chickpea

[100 rows x 5 columns]

Empty DataFrame

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Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

	temperature	humidity	ph	rainfall	label
1500	17.136928	20.595417	5.685972	128.256862	kidneybeans
1501	19.634743	18.907056	5.759237	106.359818	kidneybeans
1502	22.913502	21.339531	5.873172	109.225556	kidneybeans
1503	16.433403	24.240459	5.926677	140.371781	kidneybeans
1504	22.139747	23.022511	5.955617	76.641283	kidneybeans
...
1595	20.109938	23.223238	5.595032	73.363865	kidneybeans
1596	23.605066	21.905396	5.525905	100.597873	kidneybeans
1597	19.731369	24.894874	5.819404	84.063541	kidneybeans
1598	20.934099	21.189301	5.562202	133.191442	kidneybeans
1599	18.782263	20.247683	5.630665	104.257072	kidneybeans

[100 rows x 5 columns]

	temperature	humidity	ph	rainfall	label
2000	36.512684	57.928872	6.031608	122.653969	pigeonpeas
2001	36.891637	62.731782	5.269085	163.726655	pigeonpeas
2002	29.235405	59.389676	5.985793	103.330180	pigeonpeas
2003	27.335349	43.357960	6.091863	142.330368	pigeonpeas
2004	21.064368	55.469859	5.624731	184.622671	pigeonpeas
...
2095	29.892866	66.353751	6.931925	198.140300	pigeonpeas
2096	29.377356	44.822946	6.842744	172.401680	pigeonpeas
2097	29.650529	42.898332	6.876573	186.922605	pigeonpeas
2098	19.542849	66.347773	6.151029	173.110698	pigeonpeas

```
2098      29.422045  68.347773  8.131023  175.110030  pigeonpeas
2099      20.046118  48.939056  4.567446  122.456420  pigeonpeas
```

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[100 rows x 5 columns]
```

	temperature	humidity	ph	rainfall	label
1600	27.910952	64.709306	3.692864	32.678919	mothbeans
1601	27.322206	51.278688	4.371746	36.503791	mothbeans
1602	28.660242	59.318912	8.399136	36.926297	mothbeans
1603	29.029553	61.093875	8.840656	72.980166	mothbeans
1604	27.780315	54.650300	8.153023	32.050253	mothbeans
...
1695	29.337434	49.003231	8.914075	42.440543	mothbeans
1696	27.965837	61.349001	8.639586	70.104721	mothbeans
1697	24.868040	48.275320	8.621514	63.918765	mothbeans
1698	25.876823	45.963419	5.838509	38.532547	mothbeans
1699	31.019636	49.976752	3.532009	32.812965	mothbeans

```
[100 rows x 5 columns]
```

	temperature	humidity	ph	rainfall	label
200	27.433294	87.805077	7.185301	54.733676	mungbean
201	28.334043	80.772760	7.034214	38.797641	mungbean
202	27.014704	84.342627	6.635969	55.296354	mungbean
203	28.174327	81.045548	6.828187	36.357207	mungbean
204	29.878881	87.327612	6.890780	44.752159	mungbean
..
295	28.727527	89.127604	7.069748	58.529743	mungbean
296	27.956397	83.527060	6.921994	43.257268	mungbean
297	28.174587	83.696593	6.770955	37.246465	mungbean
298	28.776535	86.691340	6.983130	56.124432	mungbean
299	28.438097	83.489914	6.267684	52.554700	mungbean

```
[100 rows x 5 columns]
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
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Index: []
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Empty DataFrame
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Columns: [temperature, humidity, ph, rainfall, label]
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Index: []
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	temperature	humidity	ph	rainfall	label
1800	29.484400	63.199153	7.454532	71.890907	blackgram
1801	26.734340	68.139997	7.040056	67.150964	blackgram
1802	26.272744	62.288149	7.418651	70.232076	blackgram
1803	34.036792	67.211138	6.501869	73.235736	blackgram
1804	28.036441	65.066017	6.814411	72.495077	blackgram
...
1895	33.369844	65.677182	6.874142	64.895175	blackgram
1896	31.434506	62.993035	7.760618	64.776515	blackgram
1897	27.716783	63.291034	6.781842	68.565080	blackgram
1898	32.639187	61.300905	7.326980	61.838761	blackgram
1899	32.747739	67.779546	7.453975	63.377844	blackgram

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[100 rows x 5 columns]
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Columns: [temperature, humidity, ph, rainfall, label]
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Columns: [temperature, humidity, ph, rainfall, label]
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Columns: [temperature, humidity, ph, rainfall, label]
Index: []
      temperature  humidity      ph  rainfall  label
600    28.051536  63.498022  7.604110  43.357954  lentil
601    19.440843  63.277715  7.728832  46.831301  lentil
602    29.848231  60.638726  7.491217  46.804526  lentil
603    21.363838  69.923759  6.633865  46.635286  lentil
604    26.286639  68.519667  7.324863  46.138330  lentil
..          ...      ...      ...      ...      ...
695    23.052764  60.424786  7.011121  52.602853  lentil
696    21.658458  63.583371  6.280726  38.076594  lentil
697    26.250703  67.627797  7.621495  40.810630  lentil
698    20.971953  63.831799  7.630424  53.102079  lentil
699    23.897364  66.321020  7.802212  40.745368  lentil

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Columns: [temperature, humidity, ph, rainfall, label]
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Columns: [temperature, humidity, ph, rainfall, label]
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Index: []
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Empty DataFrame
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```
Columns: [temperature, humidity, ph, rainfall, label]
```

[illegible]

```
2997 21.254558 92.038585 7.155321 100.278407 pomegranate
2998 23.653741 93.326575 6.431266 109.807618 pomegranate
2999 23.884048 86.206138 6.082572 108.312179 pomegranate
```

[100 rows x 5 columns]

	temperature	humidity	ph	rainfall	label
2200	29.367924	76.249001	6.149934	92.828409	banana
2201	27.333690	83.676752	5.849076	101.049479	banana
2202	27.400536	82.962213	6.276800	104.937800	banana
2203	29.315908	80.115857	5.926825	90.109781	banana
2204	26.054330	79.396545	5.519088	113.229737	banana
...
2295	27.359116	84.546250	6.387431	90.812505	banana
2296	28.010680	76.528081	5.891414	103.704078	banana
2297	28.672089	82.207936	5.725419	94.379875	banana
2298	27.345851	78.487383	6.281070	92.155243	banana
2299	29.507046	78.205856	5.507642	98.125658	banana

[100 rows x 5 columns]

	temperature	humidity	ph	rainfall	label
2500	29.737700	47.548852	5.954627	90.095869	mango
2501	33.556956	53.729798	4.757115	98.675276	mango
2502	27.003155	47.675254	5.699587	95.851183	mango
2503	33.561502	45.535566	5.977414	95.705259	mango
2504	35.898556	54.259642	6.430139	92.197217	mango
...
2595	31.484517	48.779263	4.525722	93.172220	mango
2596	27.698193	51.415932	5.403908	100.772070	mango
2597	30.412358	52.481006	6.621624	93.923759	mango
2598	32.177520	54.013527	6.207496	91.887661	mango
2599	32.611261	47.749165	5.418475	91.101908	mango

[100 rows x 5 columns]

	temperature	humidity	ph	rainfall	label
2300	29.996772	81.541566	6.112306	67.125345	grapes
2301	30.728040	82.426141	6.092242	68.381355	grapes
2302	32.445778	83.885049	5.896343	68.739325	grapes
2303	37.465668	80.659687	6.155261	66.838723	grapes
2304	22.032962	83.743728	5.732454	65.344408	grapes
...
2395	9.851243	80.226317	5.965379	68.428024	grapes
2396	24.972561	82.728287	6.476758	66.700163	grapes
2397	27.237083	82.945733	6.224543	70.425089	grapes
2398	18.706791	83.479529	6.209928	66.596449	grapes
2399	9.949929	82.551390	5.841138	66.008176	grapes

[100 rows x 5 columns]

Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

Empty DataFrame

Columns: [temperature, humidity, ph, rainfall, label]

Index: []

	temperature	humidity	ph	rainfall	label
3000	26.473302	80.922544	6.283818	53.657426	watermelon
3001	25.187800	83.446217	6.818261	46.874209	watermelon
3002	25.299547	81.775276	6.376201	57.041471	watermelon
3003	24.746313	88.308663	6.581588	57.958261	watermelon
3004	26.587407	81.325632	6.932740	41.875400	watermelon
...
3095	25.287846	89.636679	6.765095	58.286977	watermelon
3096	26.638386	84.695469	6.189214	48.324286	watermelon
3097	25.331045	84.305338	6.904242	41.532187	watermelon
3098	26.897502	83.892415	6.463271	43.971937	watermelon
3099	26.986037	89.413849	6.260839	58.548767	watermelon


```
[100 rows x 5 columns]
  temperature  humidity      ph  rainfall  label
2600  27.578269  94.118782  6.776533  28.082532 muskmelon
2601  27.820548  93.035552  6.528404  26.324055 muskmelon
2602  29.099104  94.222378  6.750146  22.524973 muskmelon
2603  28.049436  90.831307  6.562833  20.762230 muskmelon
2604  29.916906  94.556956  6.117530  28.160572 muskmelon
...
2695  29.527531  94.574594  6.700338  21.135457 muskmelon
2696  28.504164  93.468065  6.565313  24.200072 muskmelon
2697  28.895786  94.789930  6.286515  23.036250 muskmelon
2698  27.049275  91.382173  6.448062  23.657475 muskmelon
2699  28.960179  91.695322  6.585873  24.745820 muskmelon
```

```
[100 rows x 5 columns]
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []
  temperature  humidity      ph  rainfall  label
2400  22.750888  90.694892  5.521467  110.431786 apple
2401  23.849401  94.348150  6.133221  114.051250 apple
2402  22.608010  94.589006  6.226290  116.039659 apple
2403  21.186674  91.134357  6.321152  122.233323 apple
2404  23.410447  91.699133  5.587906  116.077793 apple
...
2495  23.805938  92.488795  5.889481  119.633555 apple
2496  22.319441  90.851744  5.732758  100.117344 apple
2497  22.144641  93.825674  6.400321  120.631078 apple
2498  23.651676  94.505288  6.496934  115.361127 apple
2499  22.169395  90.271856  6.229499  124.468311 apple
```

```
[100 rows x 5 columns]
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []
  temperature  humidity      ph  rainfall  label
2700  15.781442  92.510777  6.354007  119.035002 orange
2701  26.030973  91.508193  7.511755  101.284774 orange
2702  13.360506  91.356082  7.335158  111.226688 orange
2703  18.879577  92.043045  7.813917  114.665951 orange
2704  29.477417  91.578029  7.129137  111.172750 orange
...
2795  32.717485  90.546083  7.656978  113.328978 orange
2796  25.162966  92.547360  7.105905  114.311720 orange
2797  27.681673  94.473169  7.199106  113.999515 orange
2798  21.350934  90.949297  7.871063  107.086209 orange
2799  11.698946  93.256389  7.566166  103.200599 orange
```

```
[100 rows x 5 columns]
  temperature  humidity      ph  rainfall  label
2800  35.214628  91.497251  6.793245  243.074507 papaya
2801  42.394134  90.790281  6.576261  88.466075 papaya
2802  38.419163  91.142204  6.751453  119.265388 papaya
2803  35.332949  92.115086  6.560743  235.613359 papaya
2804  42.923253  90.076005  6.938313  196.240824 papaya
```

```

...
2895    40.102077  94.351102  6.979102  149.119999  papaya
2896    38.589545  91.580765  6.825665  102.270823  papaya
2897    41.313301  91.150880  6.617067  239.742755  papaya
2898    37.035519  91.794302  6.551893  188.518142  papaya
2899    23.012402  91.073555  6.598860  208.335798  papaya

```

```
[100 rows x 5 columns]
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
```

```
Index: []
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
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```
Index: []
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Empty DataFrame
```

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Columns: [temperature, humidity, ph, rainfall, label]
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```
Index: []
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Columns: [temperature, humidity, ph, rainfall, label]
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Columns: [temperature, humidity, ph, rainfall, label]
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Index: []
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Columns: [temperature, humidity, ph, rainfall, label]
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Columns: [temperature, humidity, ph, rainfall, label]
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Empty DataFrame
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Columns: [temperature, humidity, ph, rainfall, label]
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Index: []
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Empty DataFrame
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```
Columns: [temperature, humidity, ph, rainfall, label]
```

```
Index: []
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
```

```
Index: []
```

```

      temperature  humidity      ph      rainfall  label
1700    26.762749  92.860569  6.420019  224.590366  coconut
1701    25.612944  94.313884  5.740055  224.320676  coconut
1702    28.130115  95.648076  5.686973  151.076190  coconut
1703    25.028872  91.537209  6.293662  179.824894  coconut
1704    27.797977  99.645730  6.381975  181.694228  coconut
...
1795    28.435729  95.884041  5.665785  203.928371  coconut
1796    28.940997  93.001090  5.764615  191.772309  coconut
1797    26.454887  93.450426  5.901496  149.222026  coconut
1798    25.794905  93.841506  5.779033  152.423871  coconut
1799    26.931419  98.803136  5.671549  166.571288  coconut

```

```
[100 rows x 5 columns]
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
```

```
Index: []
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
```

```
Index: []
```

```
Empty DataFrame
```

```
Columns: [temperature, humidity, ph, rainfall, label]
```

```

Columns: [temperature, humidity, ph, rainfall, label]
Index: []
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []

```

	temperature	humidity	ph	rainfall	label
900	24.402289	79.197320	7.231325	90.802236	cotton
901	23.095956	84.862757	6.925412	71.295811	cotton
902	23.965635	76.976967	7.633437	90.756167	cotton
903	24.887381	75.621372	6.827355	89.760504	cotton
904	25.362438	83.632761	6.176716	88.436189	cotton
..
995	22.107190	78.583201	6.364730	74.941366	cotton
996	23.038140	76.110215	6.913679	91.496975	cotton
997	24.547953	75.397527	7.766260	63.880799	cotton
998	23.738680	75.775038	7.556064	76.636692	cotton
999	22.318719	83.861300	7.288377	65.357470	cotton


```

[100 rows x 5 columns]

```

	temperature	humidity	ph	rainfall	label
700	25.524690	72.248508	6.002525	151.886997	jute
701	26.591050	82.941641	6.033485	161.247000	jute
702	25.297818	86.887054	7.121934	196.624951	jute
703	25.721009	88.165136	6.207460	175.608670	jute
704	23.584193	72.004608	6.090060	190.424216	jute
..
795	23.874845	86.792613	6.718725	177.514731	jute
796	23.928879	88.071123	6.880205	154.660874	jute
797	24.814412	81.686889	6.861069	190.788639	jute
798	24.447439	82.286484	6.769346	190.968489	jute
799	26.574217	73.819949	7.261581	159.322307	jute


```

[100 rows x 5 columns]

```

	temperature	humidity	ph	rainfall	label
800	26.333780	57.364700	7.261314	191.654941	coffee
801	26.452885	55.322227	7.235070	144.686134	coffee
802	25.708227	52.886671	7.189156	136.732509	coffee
803	24.128325	56.181077	6.431900	147.275782	coffee
804	23.443723	60.395233	6.423211	122.210325	coffee
..
895	26.774637	66.413269	6.780064	177.774507	coffee
896	27.417112	56.636362	6.086922	127.924610	coffee
897	24.131797	67.225123	6.362608	173.322839	coffee
898	26.272418	52.127394	6.758793	127.175293	coffee
899	23.603016	60.396475	6.779833	140.937041	coffee


```

[100 rows x 5 columns]
Empty DataFrame
Columns: [temperature, humidity, ph, rainfall, label]
Index: []

```

In [15]:

```
crop['label']
```

Out[15]:

```

0          rice
1          rice
2          rice
3          rice
4          rice
...
3095  watermelon
3096  watermelon
3097  watermelon
3098  watermelon
3099  watermelon

```

Name: label, Length: 3100, dtype: object

Name: label, Length: 5100, dtype: object

```
In [16]: extract_labels = []
         for i in crop_names_from_fert:
             if i in crop_names:
                 extract_labels.append(i)
```

```
In [17]: # using extract labels on crop to get all the data related to those labels
         new_crop = pd.DataFrame(columns = crop.columns)
         new_fert = pd.DataFrame(columns = fert.columns)
```

```
In [18]: for label in extract_labels:
         new_crop = new_crop.append(crop[crop['label'] == label])
```

```
In [20]: for label in extract_labels:
         new_fert = new_fert.append(fert[fert['Crop'] == label].iloc[0])
```

```
In [21]: new_crop
```

```
Out[21]:
```

	temperature	humidity	ph	rainfall	label
0	20.879744	82.002744	6.502985	202.935536	rice
1	21.770462	80.319644	7.038096	226.655537	rice
2	23.004459	82.320763	7.840207	263.964248	rice
3	26.491096	80.158363	6.980401	242.864034	rice
4	20.130175	81.604873	7.628473	262.717340	rice
...
895	26.774637	66.413269	6.780064	177.774507	coffee
896	27.417112	56.636362	6.086922	127.924610	coffee
897	24.131797	67.225123	6.362608	173.322839	coffee
898	26.272418	52.127394	6.758793	127.175293	coffee
899	23.603016	60.396475	6.779833	140.937041	coffee

2200 rows × 5 columns

```
In [22]: new_fert
```

```
Out[22]:
```

	Crop	N	P	K	pH
0	rice	80	40	40	5.5
3	maize	80	40	20	5.5
5	chickpea	40	60	80	5.5
12	kidneybeans	20	60	20	5.5
13	pigeonpeas	20	60	20	5.5
14	mothbeans	20	40	20	5.5
15	mungbean	20	40	20	5.5

15	mungbean	20	40	20	5.5
18	blackgram	40	60	20	5.0
24	lentil	20	60	20	5.5
60	pomegranate	20	10	40	5.5
61	banana	100	75	50	6.5
62	mango	20	20	30	5.0
63	grapes	20	125	200	4.0
66	watermelon	100	10	50	5.5
67	muskmelon	100	10	50	5.5
69	apple	20	125	200	6.5
74	orange	20	10	10	4.0
75	papaya	50	50	50	6.0
88	coconut	20	10	30	5.0
93	cotton	120	40	20	5.5
94	jute	80	40	40	5.5
95	coffee	100	20	30	5.5

In [23]:

```
new_crop.to_csv('../Data-raw/MergeFileCrop.csv')  
new_fert.to_csv('../Data-raw/FertilizerData.csv')
```