

Progress till now:

Maximising : **Profit**

Minimising : **Risk**

Risk => root system, water requirement.

Root system => no.of (Deep rooted) = no.of (Medium rooted) = no.of (Shallow rooted)

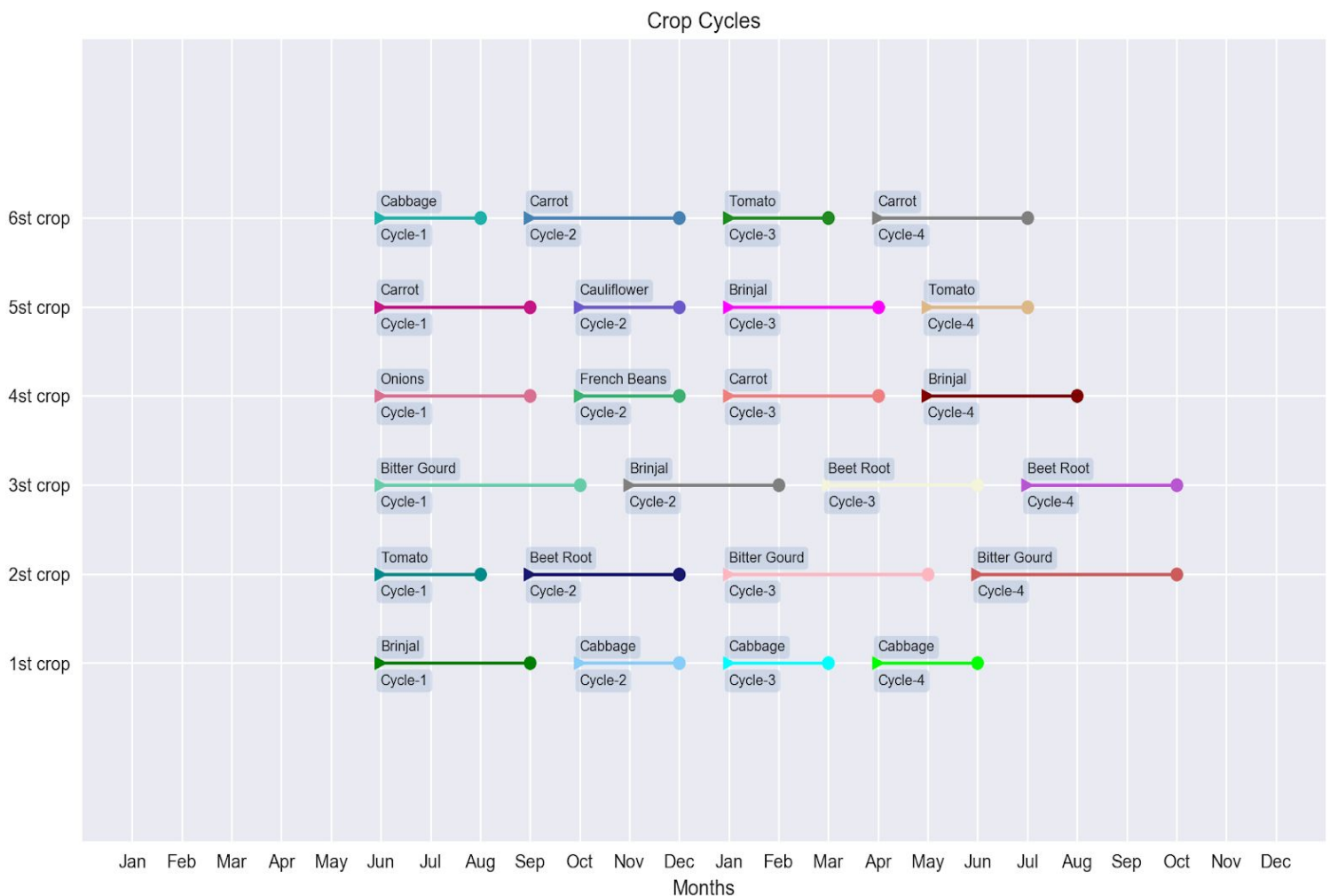
Water req => lower the better.

Objective function : $\text{Max}((W1 \times \text{Profit} + W2 \times \text{Risk}) / (W1 + W2))$

$W1 = 0.9, W2 = -0.1$

Risk = $W3 \times \text{Root_sys} + W4 \times \text{Water_req}$

$W3 = 0.5, W4 = 0.5$



Terminal Output :

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Crop cycle : 1
Best individual is [5, 20, 3, 16, 7, 6], Fitness is (247.59999999999997,)
+-----+-----+-----+-----+-----+-----+-----+
| Crop | Planting Month | Harvest Month | Root Sys | Water Req | Cult Cost | Profit |
+-----+-----+-----+-----+-----+-----+-----+
| Brinjal | June | September | Deep | M | 225000 | 575000 |
| Tomato | June | August | Deep | M | 180000 | 464000 |
| Bitter Gourd | June | October | Medium | M | 700000 | 320000 |
| Onions | June | September | Shallow | M | 360000 | 212000 |
| Carrot | June | September | Medium | M | 810000 | 426000 |
| Cabbage | June | August | Shallow | H | 126000 | 315000 |
+-----+-----+-----+-----+-----+-----+-----+
Profit from cycle-1 : 2312000

Crop cycle : 2
Best individual is [6, 1, 5, 13, 8, 7], Fitness is (278.49861111111111,)
+-----+-----+-----+-----+-----+-----+-----+
| Crop | Planting Month | Harvest Month | Root Sys | Water Req | Cult Cost | Profit |
+-----+-----+-----+-----+-----+-----+-----+
| Cabbage | October | December | Shallow | H | 168000 | 459000 |
| Beet Root | September | December | Shallow | M | 640000 | 560000 |
| Brinjal | November | February | Deep | M | 200000 | 635000 |
| French Beans | October | December | Medium | M | 200000 | 190000 |
| Cauliflower | October | December | Shallow | M | 168000 | 209000 |
| Carrot | September | December | Medium | M | 720000 | 546000 |
+-----+-----+-----+-----+-----+-----+-----+
Profit from cycle-2 : 2599000

Crop cycle : 3
Best individual is [6, 3, 1, 7, 5, 20], Fitness is (217.225,)
+-----+-----+-----+-----+-----+-----+-----+
| Crop | Planting Month | Harvest Month | Root Sys | Water Req | Cult Cost | Profit |
+-----+-----+-----+-----+-----+-----+-----+
| Cabbage | January | March | Shallow | H | 105000 | 203000 |
| Bitter Gourd | January | May | Medium | M | 300000 | 194000 |
| Beet Root | March | June | Shallow | M | 320000 | 600000 |
| Carrot | January | April | Medium | M | 450000 | 306000 |
| Brinjal | January | April | Deep | M | 125000 | 535000 |
| Tomato | January | March | Deep | M | 150000 | 204000 |
+-----+-----+-----+-----+-----+-----+-----+
Profit from cycle-3 : 2042000

Crop cycle : 4
Best individual is [6, 3, 1, 5, 20, 7], Fitness is (341.65,)
+-----+-----+-----+-----+-----+-----+-----+
| Crop | Planting Month | Harvest Month | Root Sys | Water Req | Cult Cost | Profit |
+-----+-----+-----+-----+-----+-----+-----+
| Cabbage | April | June | Shallow | H | 84000 | 315000 |
| Bitter Gourd | June | October | Medium | M | 700000 | 320000 |
| Beet Root | July | October | Shallow | M | 560000 | 520000 |
| Brinjal | May | August | Deep | M | 150000 | 815000 |
| Tomato | May | July | Deep | M | 120000 | 620000 |
| Carrot | April | July | Medium | M | 360000 | 558000 |
+-----+-----+-----+-----+-----+-----+-----+
Profit from cycle-4 : 3148000
Total Profit : 10101000

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