The name of an output file is composed of 5 elements:

1. Location id: L1, L2, …, L30
2. Customer id: C1, C2, R1, RC1
3. Number of customers: 100 for all instances
4. Improvement strategy: ImpStr1, ImpStr2, ImpStr3, ImpStr4
5. Demand profile: DemPro1, DemPro2, DemPro3, DemPro4

There are total 30×4×4×4= 1920 output files in four zip files:

1. “OUTPUT\_DemPro1\_480\_instances.zip”
2. “OUTPUT\_DemPro2\_480\_instances.zip”
3. “OUTPUT\_DemPro3\_480\_instances.zip”
4. “OUTPUT\_DemPro4\_480\_instances.zip”

The information in output files is self-explanatory. Essential descriptions are provided below.

|  |  |
| --- | --- |
| Variable/Abbreviation | Description |
| sp | Total primary echelon and secondary echelon cost |
| vrp\_cost | Direct transportation cost |
| Material\_cost | Transportation cost from plants to warehouses |
| OPF | Open primary facility (i.e. located warehouse) |
| OSF | Open secondary facility (i.e. located hub) |
| best\_OPF\_x5 | Set of internal id of located warehouses over planning horizon |
| user best\_OPF\_x5 | Set of user-specified id of located warehouses over planning horizon |
| best\_OPF\_\_g\_x3 | Set of internal id of located warehouses for each product over planning horizon |
| user best\_OPF\_\_g\_x3 | Set of user-specified id of located warehouses for each product over planning horizon |
| best\_OPF\_enter\_time\_\_g\_x3 | Set of entering periods for located warehouses corresponding to best\_OPF\_\_g\_x3 |
| best\_OPF\_\_t\_g\_x1 | Set of internal id of located warehouses for each period and product |
|  |  |
| best\_OSF\_x5 | Set of internal id of located hubs over planning horizon |
| user best\_OSF\_x5 | Set of user-specified id of located hubs over planning horizon |
| best\_OSF\_\_g\_x3 | Set of internal id of located hubs for each product over planning horizon |
| user best\_OSF\_\_g\_x3 | Set of user-specified id of located hubs for each product over planning horizon |
| best\_OSF\_enter\_time\_\_g\_x3 | Set of entering periods for located hubs corresponding to best\_OSF\_\_g\_x3 |
| best\_OSF\_\_t\_g\_x1 | Set of internal id of located hubs for each period and product |