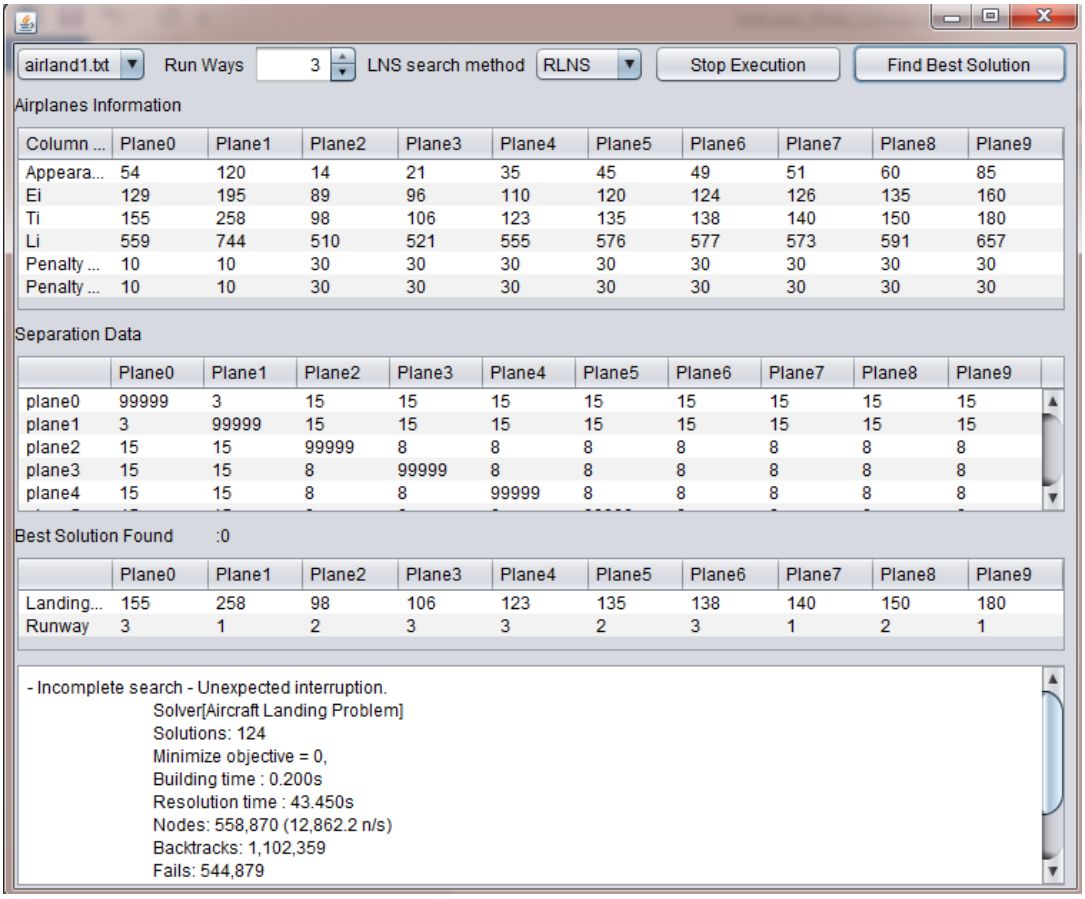
LNS applied on Aircraf Landing Problem, three runways

RLNS method, three runways

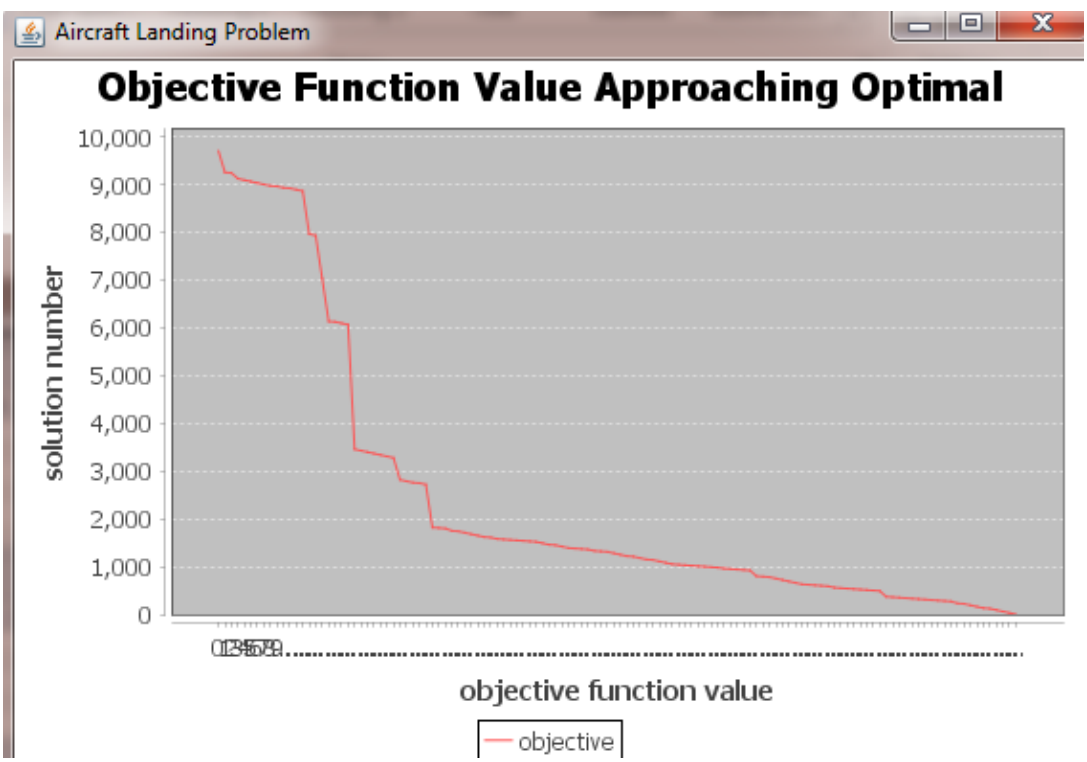
Airland1.txt three runways rlns method, three runways.



Column ...	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
Appeara...	54	120	14	21	35	45	49	51	60	85
Ei	129	195	89	96	110	120	124	126	135	160
Ti	155	258	98	106	123	135	138	140	150	180
Li	559	744	510	521	555	576	577	573	591	657
Penalty ...	10	10	30	30	30	30	30	30	30	30
Penalty ...	10	10	30	30	30	30	30	30	30	30

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
plane0	99999	3	15	15	15	15	15	15	15	15
plane1	3	99999	15	15	15	15	15	15	15	15
plane2	15	15	99999	8	8	8	8	8	8	8
plane3	15	15	8	99999	8	8	8	8	8	8
plane4	15	15	8	8	99999	8	8	8	8	8

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
Landing...	155	258	98	106	123	135	138	140	150	180
Runway	3	1	2	3	3	2	3	1	2	1



Airland1.txt three runways propagation based LNS

airland1.txt | Run Ways 3 | LNS search method PLNS | Stop Execution | Find Best Solution

Airplanes Information

Column ...	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
Appeara...	54	120	14	21	35	45	49	51	60	85
Ei	129	195	89	96	110	120	124	126	135	160
Ti	155	258	98	106	123	135	138	140	150	180
Li	559	744	510	521	555	576	577	573	591	657
Penalty ...	10	10	30	30	30	30	30	30	30	30
Penalty ...	10	10	30	30	30	30	30	30	30	30

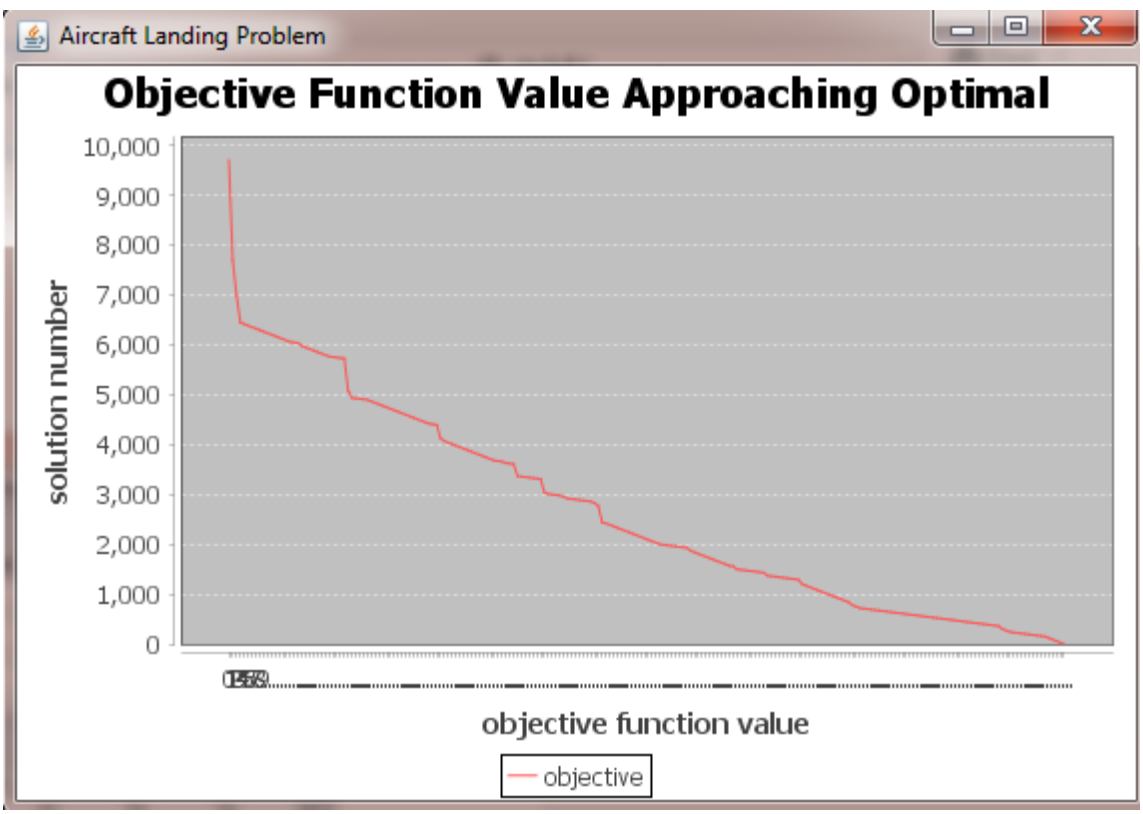
Separation Data

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
plane0	99999	3	15	15	15	15	15	15	15	15
plane1	3	99999	15	15	15	15	15	15	15	15
plane2	15	15	99999	8	8	8	8	8	8	8
plane3	15	15	8	99999	8	8	8	8	8	8
plane4	15	15	8	8	99999	8	8	8	8	8

Best Solution Found :0

	Plane0	Plane1	Plane2	Plane3	Plane4	Plane5	Plane6	Plane7	Plane8	Plane9
Landing...	155	258	98	106	123	135	138	140	150	180
Runway	1	1	1	3	2	1	3	2	3	3

```
- Incomplete search - Unexpected interruption.
        Solver[Aircraft Landing Problem]
        Solutions: 218
        Minimize objective = 0,
        Building time : 0.217s
        Resolution time : 7.301s
        Nodes: 33,995 (4,656.0 n/s)
        Backtracks: 59,734
        Fails: 31,021
```



Airland2.txt three runways, RLNS based method, three runways.

airland2.txt | Run Ways 3 | LNS search method RLNS | Stop Execution | Find Best Solution

Airplanes Information

Colu...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...
App...	54	115	9	14	25	32	34	34	40	59	191	176	85	77	201
Ei	129	190	84	89	100	107	109	109	115	134	266	251	160	152	276
Ti	155	250	93	98	111	120	121	120	128	151	341	313	181	171	342
Li	559	732	501	509	536	552	550	544	557	610	837	778	674	637	815
Pen...	10	10	30	30	30	30	30	30	30	30	10	10	30	30	10
Pen...	10	10	30	30	30	30	30	30	30	30	10	10	30	30	10

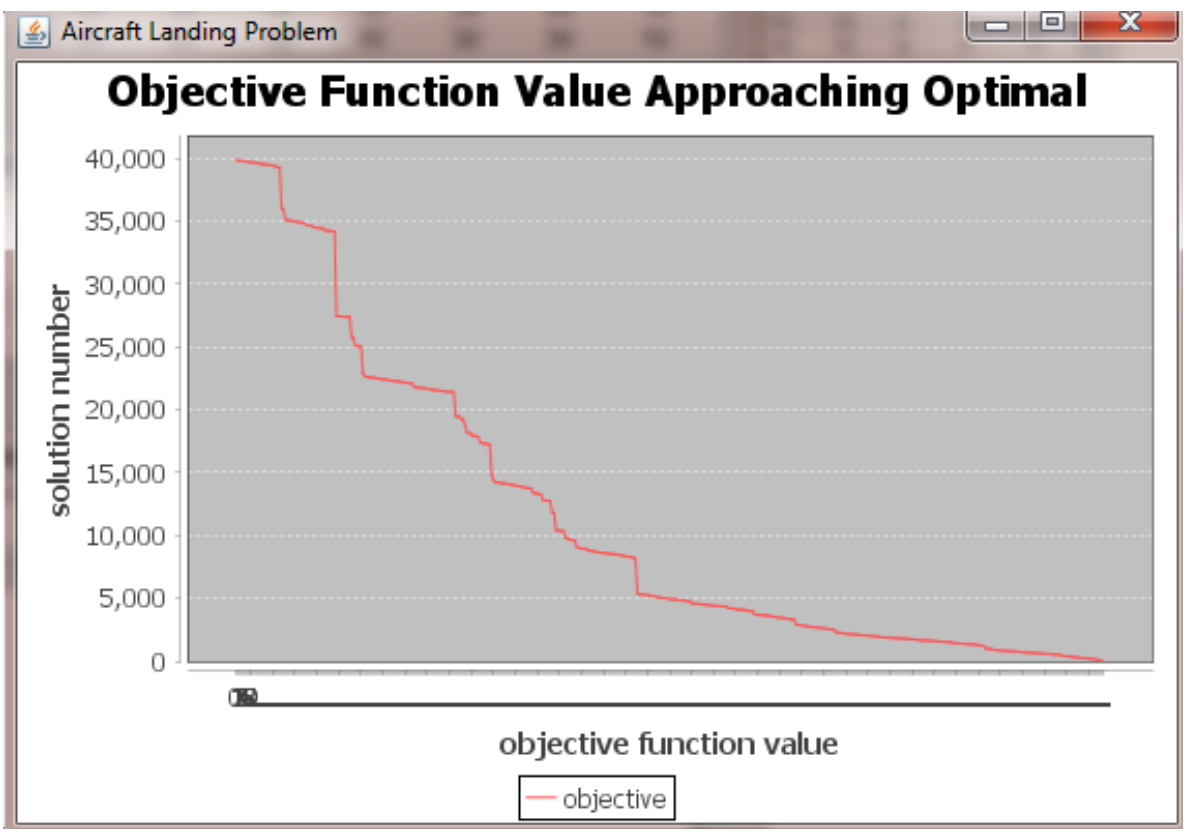
Separation Data

	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...
plan...	99999	3	15	15	15	15	15	15	15	15	3	3	15	15	3
plan...	3	99999	15	15	15	15	15	15	15	15	3	3	15	15	3
plan...	15	15	99999	8	8	8	8	8	8	8	15	15	8	8	15
plan...	15	15	8	99999	8	8	8	8	8	8	15	15	8	8	15
plan...	15	15	8	8	99999	8	8	8	8	8	15	15	8	8	15

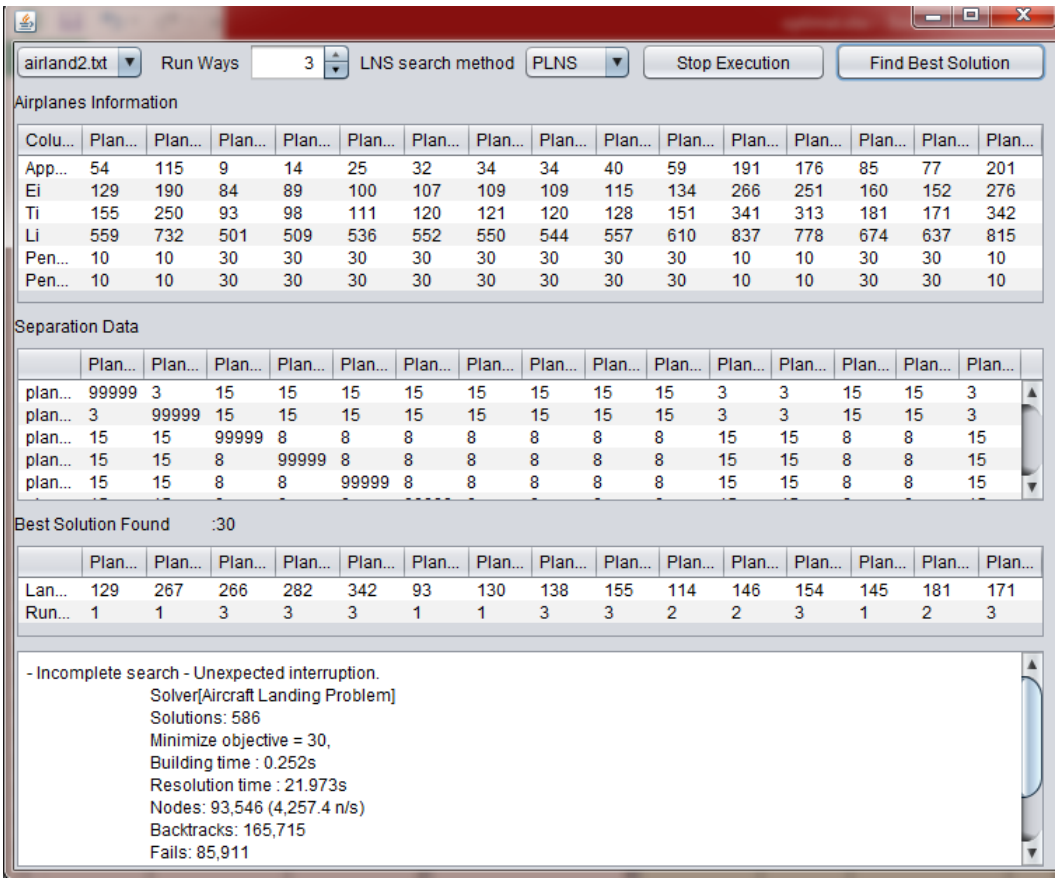
Best Solution Found :30

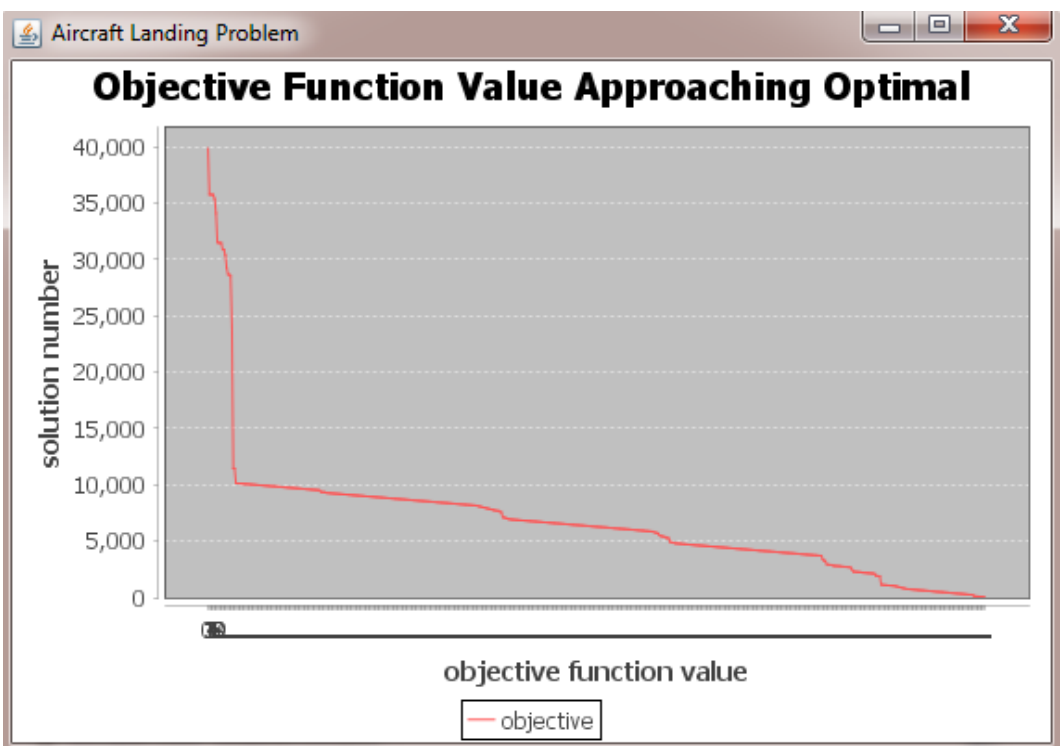
	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...	Plan...
Lan...	155	250	341	313	342	93	98	111	120	121	119	128	151	181	171
Run...	1	2	2	3	1	3	1	2	3	3	1	3	1	1	2

```
- Incomplete search - Unexpected interruption.
        Solver[Aircraft Landing Problem]
        Solutions: 459
        Minimize objective = 30,
        Building time : 0.293s
        Resolution time : 725.281s
        Nodes: 6,862,168 (9,461.4 n/s)
        Backtracks: 13,603,558
        Fails: 6,751,713
```



Airland2.txt three runways, propagation based LNS





Airland6.txt PLNS method, three runways

airland6.txt | Run Ways 3 | LNS search method PLNS | Stop Execution | Find Best Solution

Airplanes Information

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	0	4	69	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ei	0	79	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ti	0	79	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Li	0	96	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	4	4	4	3	4	4	3	4	3	3	4	4	2	1	3	3	3	4	4	2	4	4	1	3	4	3	2	3	4	4
...	4	4	4	3	4	4	3	4	3	3	4	4	2	1	3	3	3	4	4	2	4	4	1	3	4	3	2	3	4	4

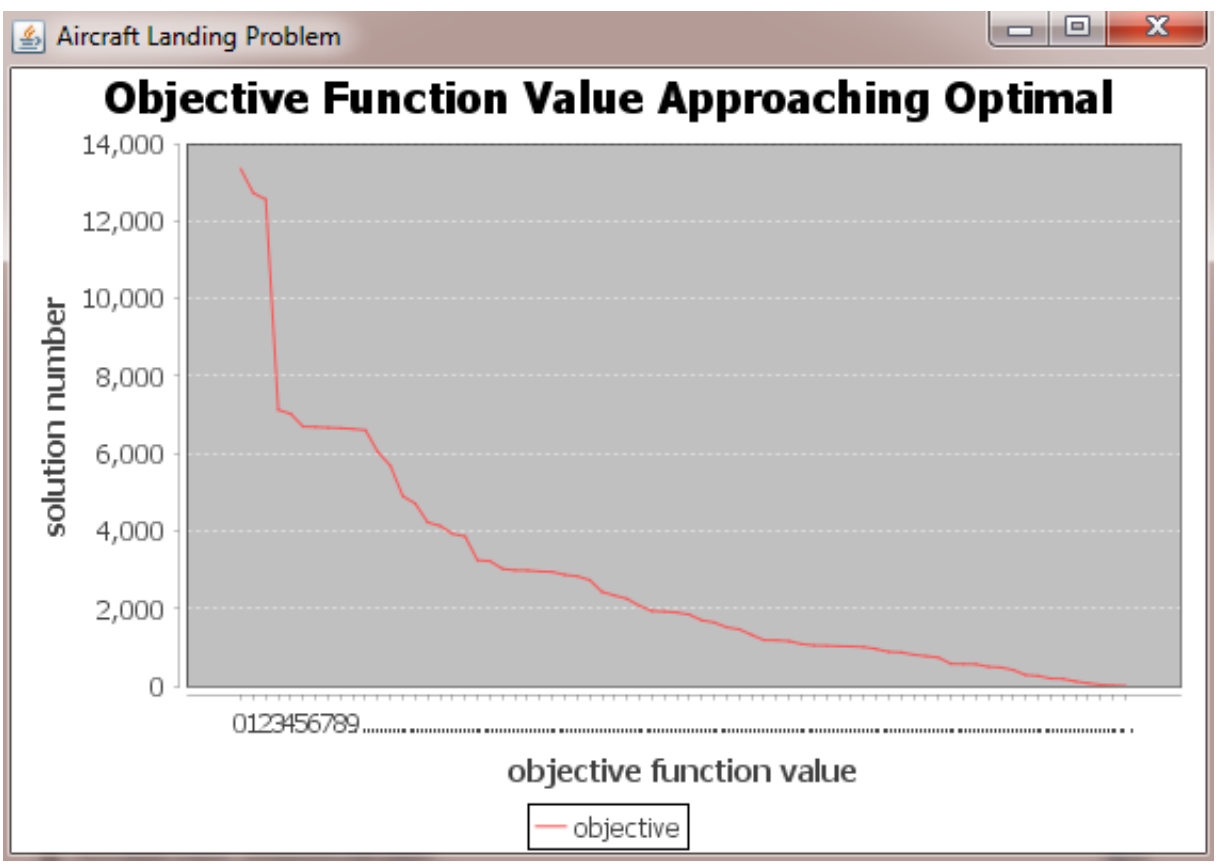
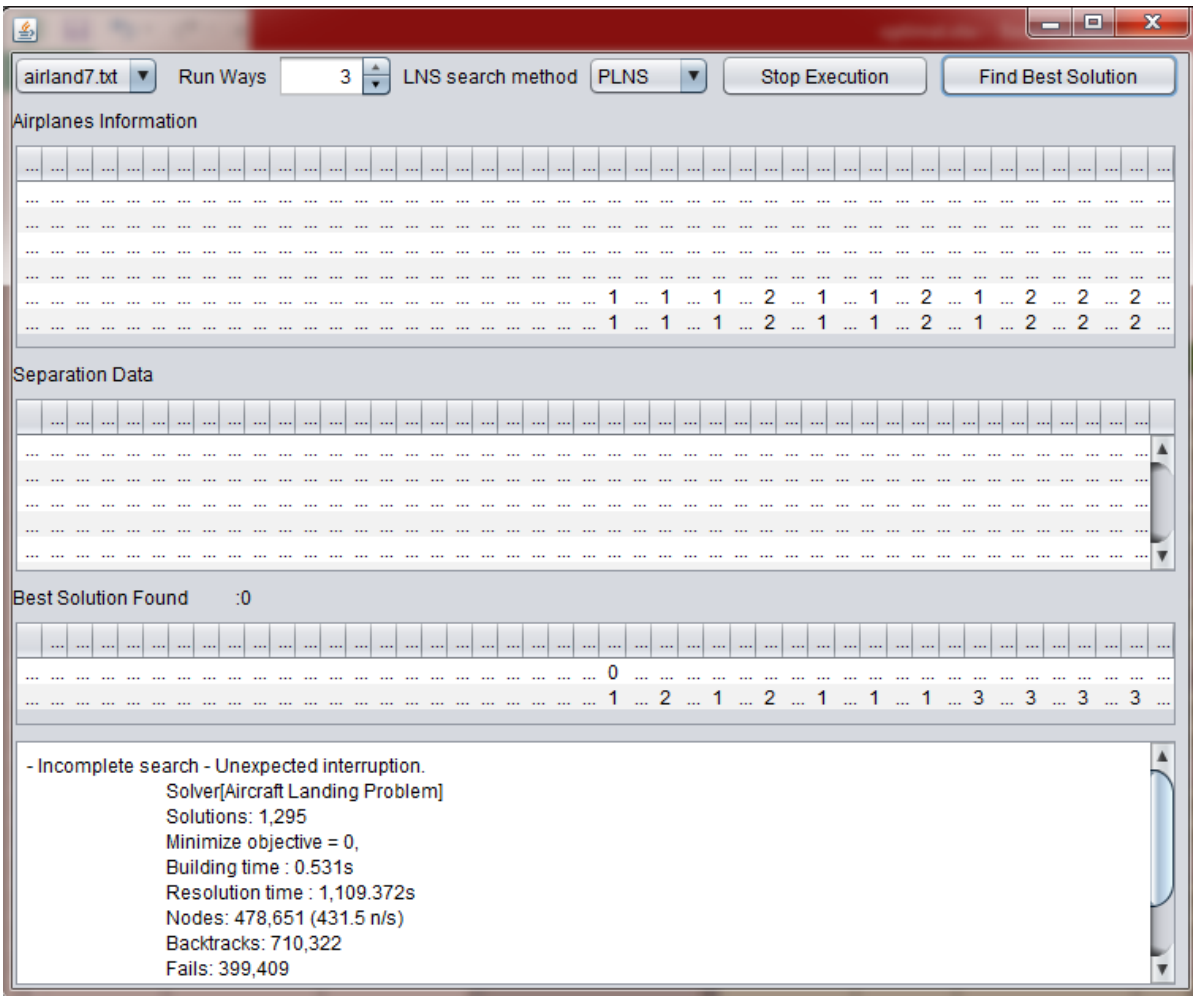
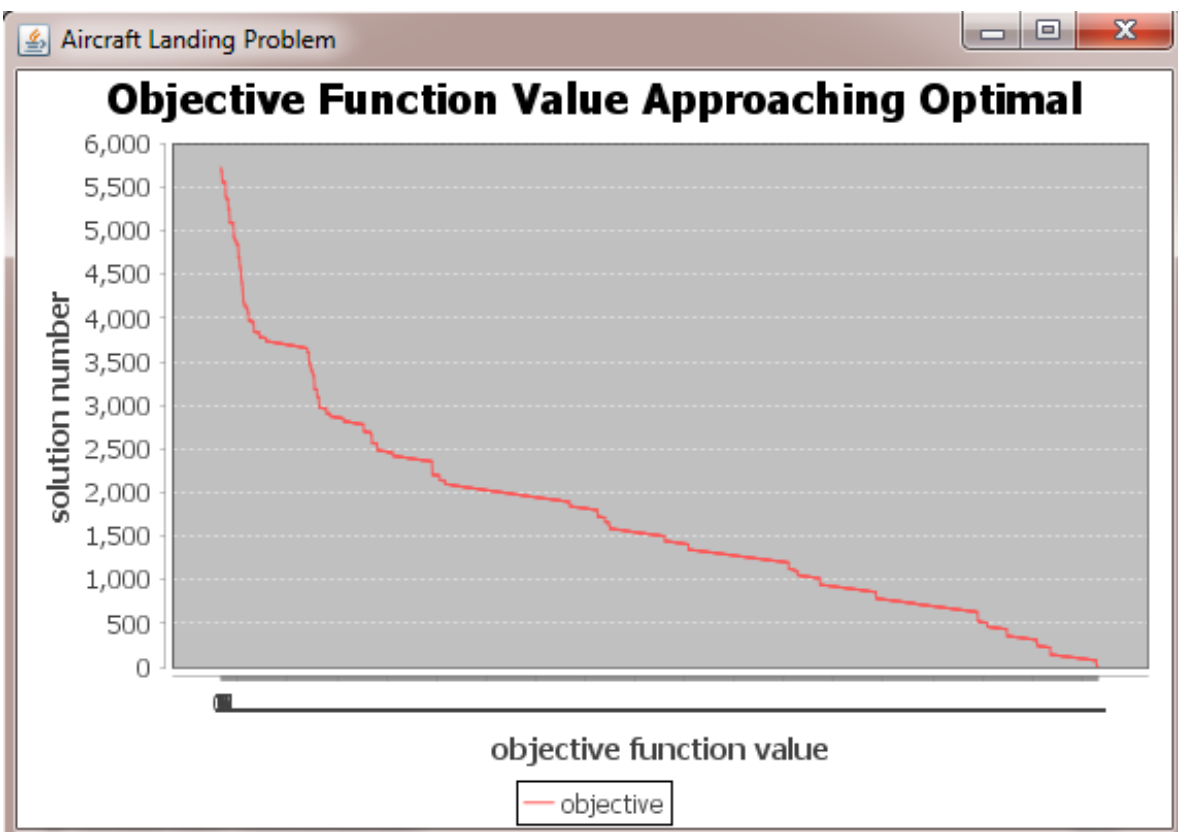
Separation Data

...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	96	...	...	...	96	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	96	...	...	...	96	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	96	...	...	...	96	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	72	...	70	...	72	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	96	...	...	...	96	...

Best Solution Found :0

	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	79	...	...	...	...	...	...	...	...	...	...	...	...
...	3	1	2	3	1	2	2	2	1	3	2	2	1	3	2	1	2	2	1	3	1	3	2	1	2	1	1	3	1	2

- Incomplete search - Unexpected interruption.
Solver[Aircraft Landing Problem]
Solutions: 72
Minimize objective = 0,
Building time : 0.402s
Resolution time : 12.170s
Nodes: 6,011 (493.9 n/s)
Backtracks: 5,143
Fails: 2,069



Airland7.txt PLNS based metho, three runways.