Value Order Heuristic:

Here I have sent values serially( have used no heuristic)

**Data Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Problem** | **Solver** | **VAH** | **#Node** | **#BT** | **Time(ms)** |
| d-10-01 | BT | VAH1 | 169248 | 169191 | 21 |
| BT | VAH2 | 516198365 | 516198301 | 1852465 |
| BT | VAH3 | 360558 | 360501 | 166 |
| BT | VAH4 | 60290 | 60233 | 32 |
| BT | VAH5 | 1654237546 | 1654237489 | 252262 |
| FC | VAH1 | 11387 | 11330 | 0 |
| FC | VAH2 | 336851945 | 336851920 | 3609159 |
| FC | VAH3 | 57 | 0 | 0 |
| FC | VAH4 | 24291263 | 24291206 | 9379 |
| FC | VAH5 | \* | \* | \* |
| d-10-06 | BT | VAH1 | 486097 | 486040 | 44 |
| BT | VAH2 | \* | \* | \* |
| BT | VAH3 | 1193703 | 1193646 | 508 |
| BT | VAH4 | 7831 | 7774 | 13 |
| BT | VAH5 | 1170013891 | 1170013834 | 849630 |
| FC | VAH1 | 57 | 0 | 0 |
| FC | VAH2 | \* | \* | \* |
| FC | VAH3 | 57 | 0 | 0 |
| FC | VAH4 | 7631 | 7574 | 0 |
| FC | VAH5 | \* | \* | \* |
| d-10-07 | **BT** | **VAH1** | 939158 | 939101 | 78 |
| BT | VAH2 | \* | \* | \* |
| BT | VAH3 | 6132680 | 6132623 | 2762 |
| BT | VAH4 | 143722 | 143665 | 75 |
| BT | VAH5 | 400582334 | 400582277 | 67702 |
| FC | VAH1 | 45474568 | 45474511 | 7633 |
| FC | VAH2 | \* | \* | \* |
| FC | VAH3 | 49132 | 49075 | 31 |
| FC | VAH4 | 425345 | 425288 | 232 |
| FC | VAH5 | \* | \* | \* |
| d-10-08 | BT | VAH1 | 2614691 | 2614634 | 193 |
| BT | VAH2 | \* | \* | \* |
| BT | VAH3 | 5118737 | 5118680 | 2034 |
| BT | VAH4 | 254875 | 254818 | 98 |
| BT | VAH5 | 186479097 | 186479040 | 27575 |
| FC | VAH1 | 34773091 | 34773034 | 5996 |
| FC | VAH2 | \* | \* | \* |
| FC | VAH3 | 95 | 38 | 0 |
| FC | VAH4 | 143308260 | 143308203 | 50447 |
| FC | VAH5 | 86897419 | 86897419 | 560914 |
| d-10-09 | BT | VAH1 | 132532 | 132475 | 16 |
| BT | VAH2 | \* | \* | \* |
| BT | VAH3 | \* | \* | \* |
| BT | VAH4 | 158774 | 158717 | 63 |
| BT | VAH5 | 850359743 | 850359686 | 159253 |
| FC | VAH1 | 57 | 0 | 0 |
| FC | VAH2 | \* | \* | \* |
| FC | VAH3 | 530327373 | 530327316 | 177709 |
| **FC** | **VAH4** | **69277** | **69220** | **35** |
| FC | VAH5 | \* | \* | \* |
| d-15-01 | **BT** | **VAH1** | 4534288 | 4534214 | **5986452** |
| BT | VAH2 | \* | \* | \* |
| BT | VAH3 | \* | \* | \* |
| BT | VAH4 | 7672762 | 7672712 | 8852467 |
| BT | VAH5 | \* | \* | \* |
| **FC** | **VAH1** | **589741** | **589726** | **2378963** |
| FC | VAH2 | \* | \* | \* |
| FC | VAH3 | 644132 | 644105 | **3389121** |
| FC | VAH4 | 2559866 | 2559809 | 6589252 |
| FC | VAH5 | \* | \* | \* |

Backtracking:

Here for simple backtracking, VAH1 and VAH4 has performed better . But VAH2 and VAH5 has performed worse. Overall VAH4 is best because it is the ration of VAH1 and VAH2 (VAH1/VAH2), where VAH1 is good and VAH2 is worst and so this result has become best.

Forward checking:

Here for forward checking, VAH3 has performed well overall. VAH3 is basically VAH1, the difference is where two variable ties, we break the tie by VAH2. Here most of the cases, we see that for VAH5, we didn’t get any solution, as it took infinite amount of time because for VAH5, we choose the next variable randomly.