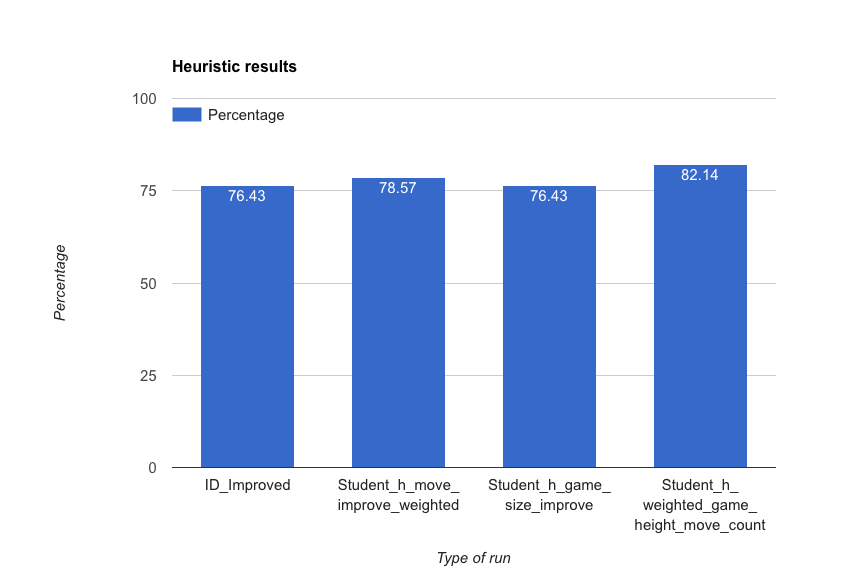
# Heuristic Analysis

A picture speaks for itself. Here is my chart with three heuristic functions compared to the ID\_Improved.



The three heuristic functions I used are –

1. **Move Improved Weighted (Student\_h\_move\_improve\_weighted)**: This is like improved\_score version, only that you apply random weights. This is for a trial to see what works and what does not. I saw that this one works much better for small number of games.
2. **Game Size Improve (Student\_h\_game\_size\_improve)**: This is Heuristic to improve by using game move and height ratio as compared to the opponent's moves. Again for small games (1, 2) this works better than ID\_Improved.
3. **Move Count Game Height Weighted (Student\_h\_weighted\_game\_height\_move\_count)**: Game size, using the middle ground of the game to decide the improvement.  
   else it is just simple improved\_score. This is by far my best attempt.

**Run**

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Evaluating: ID\_Improved

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Playing Matches:

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Match 1: ID\_Improved vs Random Result: 19 to 1

Match 2: ID\_Improved vs MM\_Null Result: 17 to 3

Match 3: ID\_Improved vs MM\_Open Result: 17 to 3

Match 4: ID\_Improved vs MM\_Improved Result: 14 to 6

Match 5: ID\_Improved vs AB\_Null Result: 18 to 2

Match 6: ID\_Improved vs AB\_Open Result: 11 to 9

Match 7: ID\_Improved vs AB\_Improved Result: 11 to 9

Results:

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ID\_Improved 76.43%

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Evaluating: Student\_h\_move\_improve\_weighted

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Playing Matches:

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Match 1: Student\_h\_move\_improve\_weighted vs Random Result: 18 to 2

Match 2: Student\_h\_move\_improve\_weighted vs MM\_Null Result: 17 to 3

Match 3: Student\_h\_move\_improve\_weighted vs MM\_Open Result: 16 to 4

Match 4: Student\_h\_move\_improve\_weighted vs MM\_Improved Result: 17 to 3

Match 5: Student\_h\_move\_improve\_weighted vs AB\_Null Result: 13 to 7

Match 6: Student\_h\_move\_improve\_weighted vs AB\_Open Result: 15 to 5

Match 7: Student\_h\_move\_improve\_weighted vs AB\_Improved Result: 14 to 6

Results:

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Student\_h\_move\_improve\_weighted 78.57%

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Evaluating: Student\_h\_game\_size\_improve

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Playing Matches:

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Match 1: Student\_h\_game\_size\_improve vs Random Result: 20 to 0

Match 2: Student\_h\_game\_size\_improve vs MM\_Null Result: 15 to 5

Match 3: Student\_h\_game\_size\_improve vs MM\_Open Result: 15 to 5

Match 4: Student\_h\_game\_size\_improve vs MM\_Improved Result: 14 to 6

Match 5: Student\_h\_game\_size\_improve vs AB\_Null Result: 15 to 5

Match 6: Student\_h\_game\_size\_improve vs AB\_Open Result: 13 to 7

Match 7: Student\_h\_game\_size\_improve vs AB\_Improved Result: 15 to 5

Results:

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Student\_h\_game\_size\_improve 76.43%

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Evaluating: Student\_h\_weighted\_game\_height\_move\_count

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Playing Matches:

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Match 1: Student\_h\_weighted\_game\_height\_move\_count vs Random Result: 19 to 1

Match 2: Student\_h\_weighted\_game\_height\_move\_count vs MM\_Null Result: 17 to 3

Match 3: Student\_h\_weighted\_game\_height\_move\_count vs MM\_Open Result: 17 to 3

Match 4: Student\_h\_weighted\_game\_height\_move\_count vs MM\_Improved Result: 14 to 6

Match 5: Student\_h\_weighted\_game\_height\_move\_count vs AB\_Null Result: 16 to 4

Match 6: Student\_h\_weighted\_game\_height\_move\_count vs AB\_Open Result: 16 to 4

Match 7: Student\_h\_weighted\_game\_height\_move\_count vs AB\_Improved Result: 16 to 4

Results:

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Student\_h\_weighted\_game\_height\_move\_count 82.14%