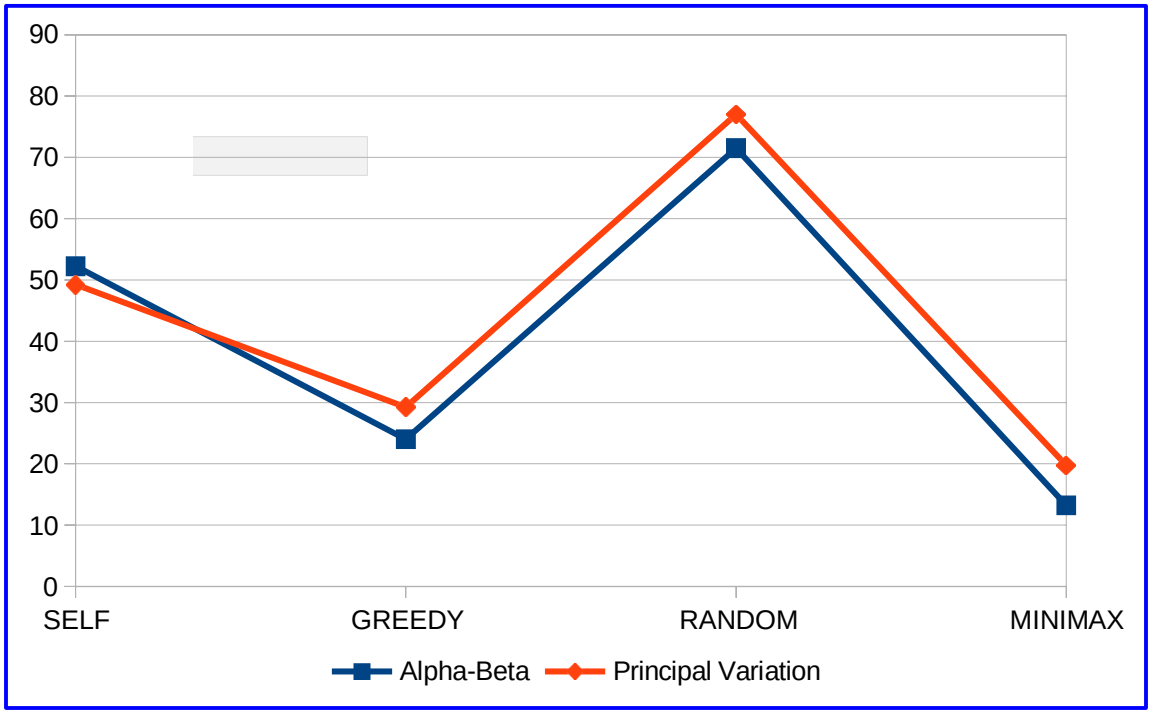
PROJECT SPECIFICATION

Build a Game Playing Agent

Test Agent	Algotirhm	Run1	Run2	Run3	Run4	Run5	Average	#Games	Fair
SELF	Alpha-Beta	55	47.5	55	57.5	46.2	52.24	40	**Yes**
SELF	Principal Variation	45	55	46.2	48.8	51.2	49.24	40	**Yes**
GREEDY	Alpha-Beta	13.8	30	27.5	25	23.8	24.02	40	**Yes**
GREEDY	Principal Variation	32.5	45	25	28.8	15	29.26	40	**Yes**
RANDOM	Alpha-Beta	67.5	67.5	77.5	73.8	71.2	71.5	40	**Yes**
RANDOM	Principal Variation	81.2	77.5	75	72.5	78.8	77	40	**Yes**
MINIMAX	Alpha-Beta	10	15	17.5	12.5	11.2	13.24	40	**Yes**
MINIMAX	**Principal Variation**	**15**	**23.8**	**20**	**20**	**20**	**19.76**	**40**	**Yes**

Experimental Results



Test Agent	Alpha-Beta	Principal Variation	%Improved
SELF	52.24	49.24	-3.00%
GREEDY	24.02	29.26	5.24%
RANDOM	71.5	77	5.50%
MINIMAX	13.24	19.76	6.52%

Report answers allrequired questions

Submission includes a short answer to the applicable questions below. (A short answer shouldbe at least 1-2 sentences at most a small paragraph.)

Advanced Search Techniques

- Choose a baseline search algorithm for comparison (for example, alpha-beta search withiterative deepening, etc.). How much performance difference does your agent show compared to the baseline?

- I observe 5.24%, 5.5% and 6.52% improvement with principal variation searchfor GREEDY, RANDOM and MINIMAX respectively. Please take a look at the table inpage 2 of this report.

- Why do you think the technique you chose wasmore (or less) effective than the baseline?

- From https://en.wikipedia.org/wiki/Principal_variation_search, we know that principal variation search dominates alpha-beta pruning in the sense that it will never examine a node that

CRITERIA	MEETS SPECIFICATIONS	STUDENT COMMENTS
		can be pruned by alpha-beta; however, it relies on accurate node ordering to capitalizeon this advantage