1106-05-1139   **Chris Coscia** (`cosciach@bc.edu`), **Jon DeWitt** (`jdewitt@haverford.edu`), **Fan Yang***
(`fanyang1@andrew.cmu.edu`) and **Yiguang Zhang** (`yzhan132@jhu.edu`). *Online Dominating Set.*

We consider a greedy online algorithm that finds a dominating set of a graph. This algorithm is online because vertices of the graph are revealed one by one. From a practical perspective, this algorithm is easy to implement and can be applied to graphs that are not fully known.

We analyze the performance of this algorithm and study how graph operations affect the performance. There are two main results:

1) We calculated expected dominating set sizes of paths, cycles, stars, multi-stars and bipartite graphs using this algorithm.

2) We found examples where adding edges to the graphs actually increases their expected dominating set sizes.

Because of its simplicity, this online algorithm can also be used to find chromatic numbers of graphs and etc. We hope our analysis of the algorithm can inspire more applications in the future. (Received September 11, 2014)