Algorithm Homework 1

NAME:

1. Express the function $n^3/1000 - 100n^2 - 100n + 3$ in terms of $\mathcal{O}$-notation.

Code Example

```python
def dfs(board, x, y):
    if not re.search("^.E*$", board[x][y]):
        return
    dx = (0,0,1,1,1,-1,-1,-1)   # move in x direction
    dy = (1,-1,0,1,-1,0,-1,1)   # move in y direction
    count = 0;

    # find out how many is around this cell
    for i in range(0,8):
        newx = x+dx[i]
        newy = y+dy[i]
        if newx < 0 or newy < 0 or \
            newx >= len(board) or newy >= len(board[0]):
            continue
        if board[newx][newy] == 'M' or board[newx][newy] == 'MF':
            count += 1
    # change this cell to the # of bombs around it
    if count > 0:
        board[x][y] = str(count)
        return

    # draw out the region
    board[x][y] = 'B'   # mark this pos
    for i in range(0,8):
        newx = x+dx[i]
        newy = y+dy[i]
        if newx < 0 or newy < 0\
            or newx >= len(board) or newy >= len(board[0]):
            continue
        if board[newx][newy] == 'E':
            dfs(board,newx,newy)
```

Listing 1: Python example

Or to to import a file

```

#ifndef _TAG_H_
#define _TAG_H_

#include <json/value.h>
#include "Person.h"
```

```
7
8  class Tag
9  {
10     private:
11         Person* tag_Person;
12         int index;
13         std::string comment;
14
15     public:
16         Tag() = default;
17         Tag(Json::Value);
18         Json::Value toJson();
19         ~Tag();
20 };
21
22 #endif  /* _TAG_H_ */
```

Listing 2: C++ sample code