

Project 4

For this project you are to rewrite your Project 3 maze program as Windows GUI using the Microsoft Foundation Classes.

Specifications

1. You will need to create a modified maze class. The public section of your maze class should contain the following functions. The private section is up to you, but here is a suggested format.

```
#include <afxwin.h>

enum sType {WALL, EMPTY, ME, GOAL, CRUMB};
enum dType {UP, DOWN, LEFT, RIGHT};

class CMaze
{
public:
    CMaze ();
    CMaze (const CMaze & other);
    ~CMaze ();
    CMaze & operator = (const CMaze & other);
    void Init (int R, int C);
    void Instructions (CFrameWnd * windowP);
    void Display (CFrameWnd * windowP);
    CRect Move (dType direction);
    void Message (CFrameWnd * windowP);
    bool Finished();
private:
    struct CMazeSquare
    {
        void Display (CDC * deviceContextP);
        CRect where;
        sType what;
    };
    void Divide (int, int, int, int, int);
    CMazeSquare ** grid;
    int numRows, numCols;
    int currentRow, currentCol;
    int endRow, endCol;
    bool finished;
};
```

2. You will need to create a windows frame class. This class will contain an instance of your maze class, the OnPaint function of this class will call the Display function of your maze class, and the OnKeyDown function of this class will call the Move function of your maze class. The class description is listed below:

```
#include <afxwin.h>
#include "CMaze.h"

class CMazeWin : public CFrameWnd
{
public:
    CMazeWin ();
    afx_msg void OnPaint ();
    afx_msg void OnKeyDown( UINT nChar, UINT nRepCnt, UINT
nFlags );
private:
    CMaze myMaze;
    DECLARE_MESSAGE_MAP ()
};
```

3. You will need to create a windows application program class. The class description should be in a header (.h) file; the function implementations should be in an implementation (.cpp) file. The class description is listed below:

```
#include <afxwin.h>
#include "CMazeWin.h"

class CMazeApp : public CWinApp
{
public:
    BOOL InitInstance ();
};
```

Date Due: 2 December 2009; 11:59 pm.

To Turn In: A tarred and zipped file called *yourlastnameP4.tgz* containing the contents of your Visual C++ project folder. Before tarring and zipping the folder you should copy it to the linux system and rename it as *yourlastnameP4*. The executable should be in the release subfolder of your project folder (more details to come).