



Gebze Institute of Technology
Department of Computer Engineering
CSE 241/505
Object Oriented Programming
Fall 2014
Homework # 5

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111044043

```

class Cell
{
public:
    /* No parameter constructor */
    Cell();
    /* 2 Parameter Constructor */
    Cell(int koorX, int koorY);
    /* getters */
    int getX() const {return coordinateX;}
    int getY() const {return coordinateY;}
    /* setters */
    void setX(const int);
    void setY(const int);
    /* logical operators */
    bool operator<(const Cell& other) const;
    bool operator>(const Cell& other) const;
    bool operator<=(const Cell& other) const;
    bool operator>=(const Cell& other) const;
    bool operator==(const Cell& other) const;
    bool operator!=(const Cell& other) const;
    // post increment/decrement operators
    Cell operator++(const int ignore);
    Cell operator--(const int ignore);
    // pre increment/decrement operators
    Cell& operator++();
    Cell& operator--();
    /* i/ostream functions */
    friend std::ostream& operator<<(std::ostream& outs, const Cell& other);
    friend std::istream& operator>>(std::istream& ins, Cell& other);

public:
    int coordinateX;
    int coordinateY;
};

```

```

class GameOfLife
{
public:
    /* No parameter constructor */
    GameOfLife();
    /* getters */
    int getRow() const {return row;}
    int getColumn() const {return column;}
    /* setters */
    void setRow(const int);
    void setColumn(const int);
    /* Dosyadan okuma fonksiyonu */

```

```

bool readFile(const char* fileName);
/* Dosyaya yazma fonksiyonu */
void writeFile(const char* fileName);
/* board i ekrana basan fonksiyon */
void printBoard();
/* Hucrelerin yasama yada olme durumunu control eder
   bir sonraki adimi hesaplar */
void play();
/* bir objedeki canli hucreleri digerine ekler */
void addLiveCell(const GameOfLife & other);
/* oyunlardaki toplam canli hucre sayisini donduren fonksiyon */
static int totalNumOfLiveCell();
/* Board boyutlarini degistiren fonksiyon */
void resizeBoard(const int rw, const int clmn);
/* Gonderilen Objenin Row sayisini donduren Fonksiyon */
int returnRow(const GameOfLife & other) const {return other.getRow();}
/* Gonderilen Objenin Column sayisini donduren Fonksiyon */
int returnColumn(const GameOfLife & other) const {return other.getColumn();}
// post increment/decrement operators
GameOfLife operator++(const int ignore);
GameOfLife operator--(const int ignore);
// pre increment/decrement operators
GameOfLife& operator++();
GameOfLife& operator--();
// binary operators
GameOfLife operator+(const Cell& other);
GameOfLife operator-(const Cell& other);
// index operator
vector<Cell> operator[](const int ind);
// compound assignment operators
GameOfLife& operator+=(const GameOfLife& other);
/* i/ostream functions */
friend std::ostream& operator<<(std::ostream& outs, const GameOfLife& other);

```

private:

```

int row; /* num of row */
int column; /* num of column*/
static int numOfLiveCell;
vector<Cell> livingCells; /* canli hucre vectoru */
vector<Cell> tempCells; /* gecici vector */
vector< vector<Cell> > vectVect; /* vektör vektörü */
Cell tmpObj; /* atamalar icin yardimci obje (push_back icin) */

/* Komsu hucrelerdeki yasayan canli hucre sayisini donduren fonksiyon */
int controlNumOfLiveCell(const int boardRow, const int boardColumn);
/* bir board'dakini digerine aktarma fonksiyonu */
void transfer();

```

```
};
```

Ödevin içeriği:

Cell ve GameOfLife classlarından oluşmaktadır. Cell objeleri koordinat belirtir.

GameOfLife objeleri birer oyundur.

4. ödevden farklı olarak Operator Overloadingler eklenmiştir.

Testin ekran görüntüleri screenshots dosyasının içersindedir.

Ödevin Çalıştırılma Şekli:

```
g++ -c HW05_111044043.cpp HW05_111044043_TEST.cpp  
g++ -o hw05 HW05_111044043.o HW05_111044043_TEST.o  
./hw05
```

Ya da Makefile çalıştırabilirsiniz.

(Dosyanın bulunduğu klasöre girip, Terminale **make** yazmanız yeterli olacaktır.)