CS375 Homework 3 Due: April 5, 2010

Convert the following C++ code into a Visual Basic .Net console program.

```
#include <iostream>
using namespace std;
class DateTime{
public:
     DateTime(int = 1, int = 1, int = 1900, int =0, int = 0, int=0);
     void setDate(int, int, int);
     void setMonth(int);
     void setDay(int);
     void setYear(int);
     int getMonth(void);
     int getDay(void);
     int getYear(void);
     void nextDay(void);
     void setTime(int,int,int);
     void setHour(int);
     void setMinute(int);
     void setSecond(int);
     int getHour(void);
     int getMinute(void);
     int getSecond(void);
     void printMilitary(void);
     void printStandard(void);
     int monthDays(void);
     void tick(void);
     bool leapYear(void);
private:
     int month, day, year, hour, minute, second;
};
DateTime::DateTime(int m, int d, int y, int hr, int min, int sec)
{
     setDate(m,d,y);
     setTime(hr,min,sec);
}
void DateTime::setDate(int mo, int dy, int yr)
{
     setMonth(mo);
     setDay(dy);
     setYear(yr);
}
int DateTime::getDay(void) {return day;}
int DateTime::getMonth(void) {return month;}
int DateTime::getYear(void) {return year;}
void DateTime::setDay(int d)
{
     if (month == 2 && leapYear()){
          if (d <= 29 && d >= 1){
               day = d;}
          else{
               day = 1;}}
```

```
     else{
          if (d <= monthDays() && d >= 1){
               day = d;}
          else{
               day = 1;}
               }
     }
void DateTime::setMonth(int m)
{
     if (m <= 12 && m >=1){
          month = m;}
     else {
          month = 1;}
}
void DateTime::setYear(int y){
     if (y <= 2050 && y >= 1900){
          year = y;}
     else{
          year = 1900;}
}
void DateTime::nextDay(void){
     setDay(++day);
     if (day==1){
          setMonth(++month);
          if (month == 1)
               setYear(++year);
     }
}
void DateTime::setTime(int hr, int min, int sec){
     setHour(hr);
     setMinute(min);
     setSecond(sec);
}
void DateTime::setHour(int h){
     if (h >= 0 && h < 24)
          hour=h;
     else
          hour=0;
}
void DateTime::setMinute(int m){
     if (m >= 0 && m < 60)
          minute=m;
     else
          minute=0;
}
void DateTime::setSecond(int s){
     if (s >= 0 && s < 60)
          second=s;
     else
          second=0;
}
int DateTime::getHour(void){ return hour;}
```

```
int DateTime::getMinute(void){ return minute;}
int DateTime::getSecond(void){ return second;}
void DateTime::printStandard(void){
     if (hour % 12 == 0)
          cout << 12 <<  ':';
     else
          cout << hour%12  <<':';
     if (minute < 10)
          cout << "0" << minute << ':';
     else
          cout << "" << minute << ':';
     if (second < 10)
          cout << "0" << second << ':';
     else
          cout << "" << second << ':';
     if (hour < 12)
          cout << " AM ";
     else
          cout << " PM ";

     cout << month << '/' << day << '/' << year << endl;
}
void DateTime::printMilitary(void){
     if (hour < 10 )
          cout << "0" <<hour << ':';
     else
          cout << "" << hour <<':';
     if (minute < 10)
          cout << "0" << minute << ':';
     else
          cout << "" << minute << ':';
     if (second < 10)
          cout << "0" << second << "   ";
     else
          cout << "" << second << "    ";
     cout << month << '/' << day << '/' << year << endl;
}
void DateTime::tick(void){
     setSecond(++second);
     if (second==0){
          setMinute(++minute);
          if (minute==0){
               setHour(++hour);
               if (hour==0)
                    nextDay();
          }
     }
}
bool DateTime::leapYear(void){
     if (year % 400 == 0 || (year % 4 == 0 && year % 100 != 0))
          return true;
     else
```

```
          return false;
}
int DateTime::monthDays(void){
     const int days[12] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30,
31};
     if(month == 2 && leapYear())
          return 29;
     else
           return days[(month-1)];
}

int main(){
     const int MAXTICKS = 3000;
     DateTime d(3, 2, 1998, 23, 50, 0);

     for (int ticks = 1; ticks <= MAXTICKS; ++ticks){
          cout << "Military time: ";
          d.printMilitary();
          cout << "Standard time: ";
          d.printStandard();
          d.tick();
     }
     cout << endl;
     return 0;
        }
```

Note: The homework should be e-mailed to cs375@cs.ua.edu no later than the due date and should include the code and sample output (ALT + Print Screen) in a word file.