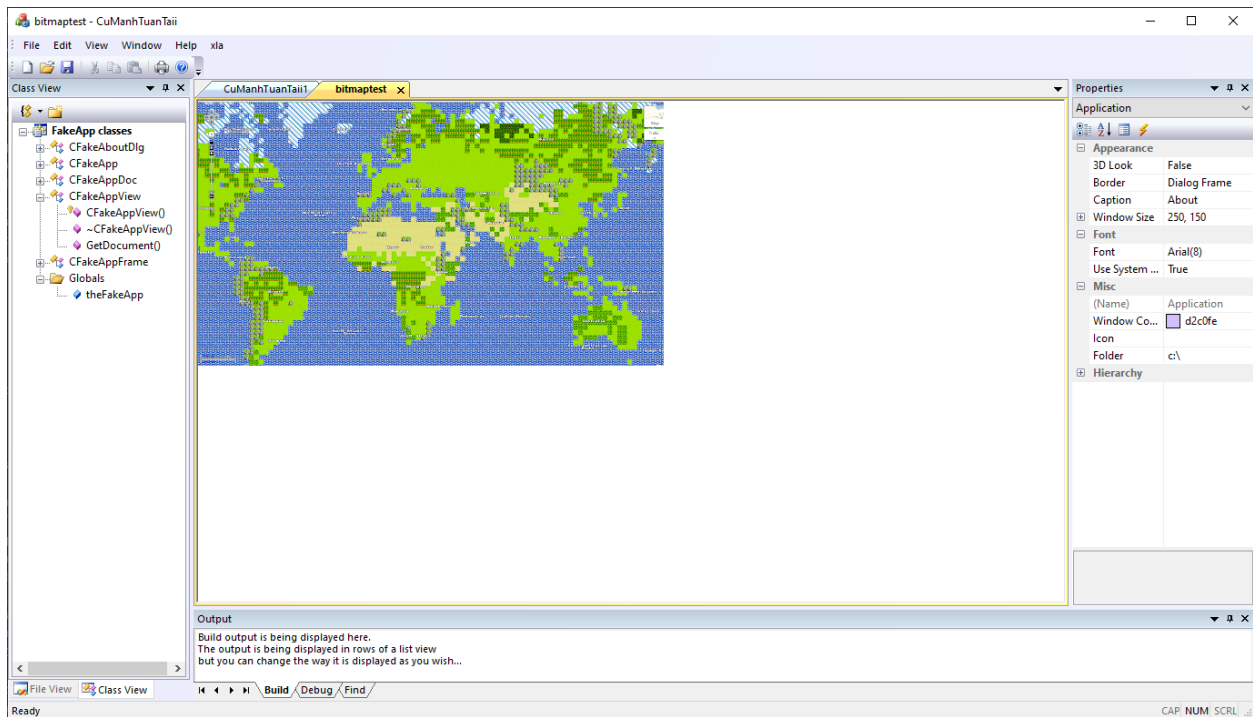


Xử lý ảnh Thực Hành

Họ tên: Cù Mạnh Tuấn Tài

MSSV: 1755248020100180



Hình 1: Ảnh Gốc

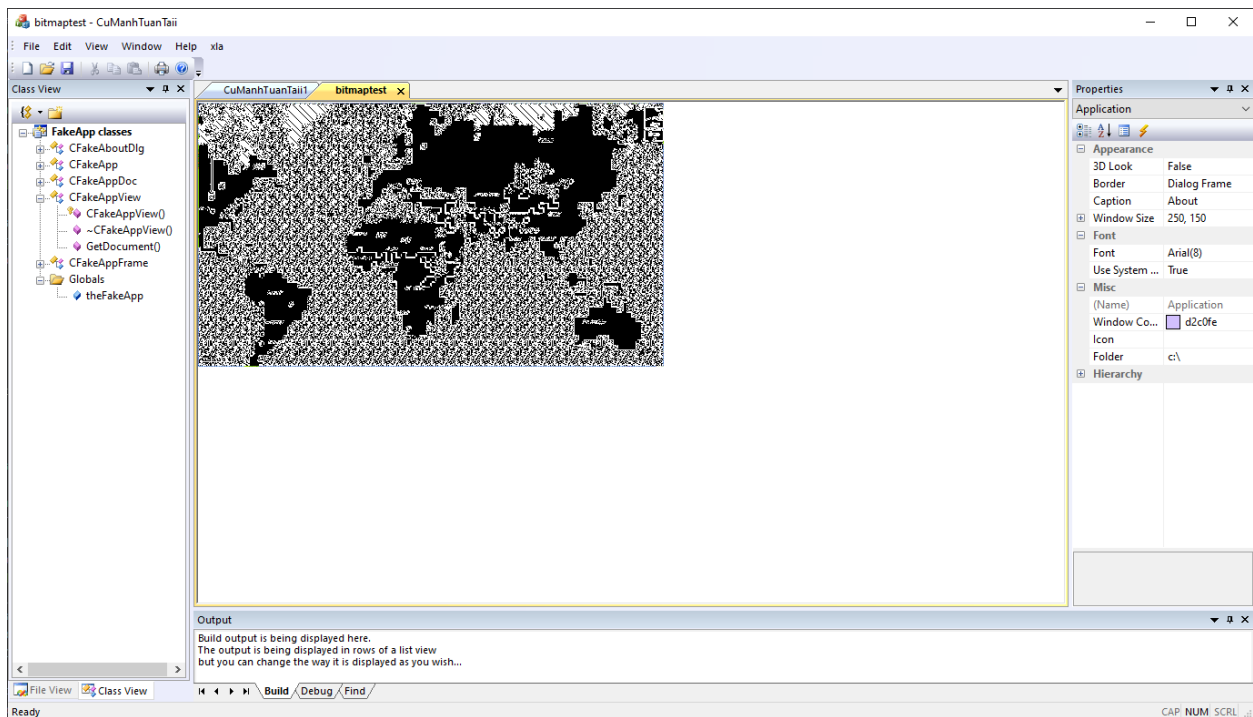
Tách biên Gradient:

```
void CCuManhTuanTaiiView::OnXlaTachbien()
{
    CCuManhTuanTaiiDoc* pDoc = GetDocument();
    ASSERT_VALID(pDoc);
    if (!pDoc)
        return;
    // TODO: Add your command handler code here
    int i, j, M, N;
    int Gm, Gn;
    int k, l;
    int L = 255, K = 200;
    byte Y[1000][1000];
    int Hm[3][3] = { {1,0,-1 }, {1, 0, -1}, {1, 0, -1} };
    int Hn[3][3] = { {1,1,1},{0,0,0}, {-1,-1,-1} };
    for (i = 1; i < pDoc->biHeader.biHeight - 1; i++)
```

```

        for (j = 1; j < pDoc->biHeader.biWidth - 1; j++)
            Y[i][j] = pDoc->Data[i][j];
    for (i = 1; i < pDoc->biHeader.biHeight - 1; i++)
        for (j = 1; j < pDoc->biHeader.biWidth - 1; j++) {
            Gm = Gn = 0;
            for (k = -1; k < 2; k++)
            {
                for (l = -1; l < 2; l++)
                {
                    Gm += pDoc->Data[i + k][j + l] * Hm[k + 1][l + 1];
                    Gn += pDoc->Data[i + k][j + l] * Hn[k + 1][l + 1];
                }
            }
            if (abs(Gm) + abs(Gn) > K)
                Y[i][j] = L;
            else
                Y[i][j] = 0;
        }
    for (i = 1; i < pDoc->biHeader.biHeight - 1; i++)
        for (j = 1; j < pDoc->biHeader.biWidth - 1; j++)
            pDoc->Data[i][j] = Y[i][j];
    Invalidate();
}

```



Hình 2: Ảnh sau khi tách biên

Phân 2 vùng:

```

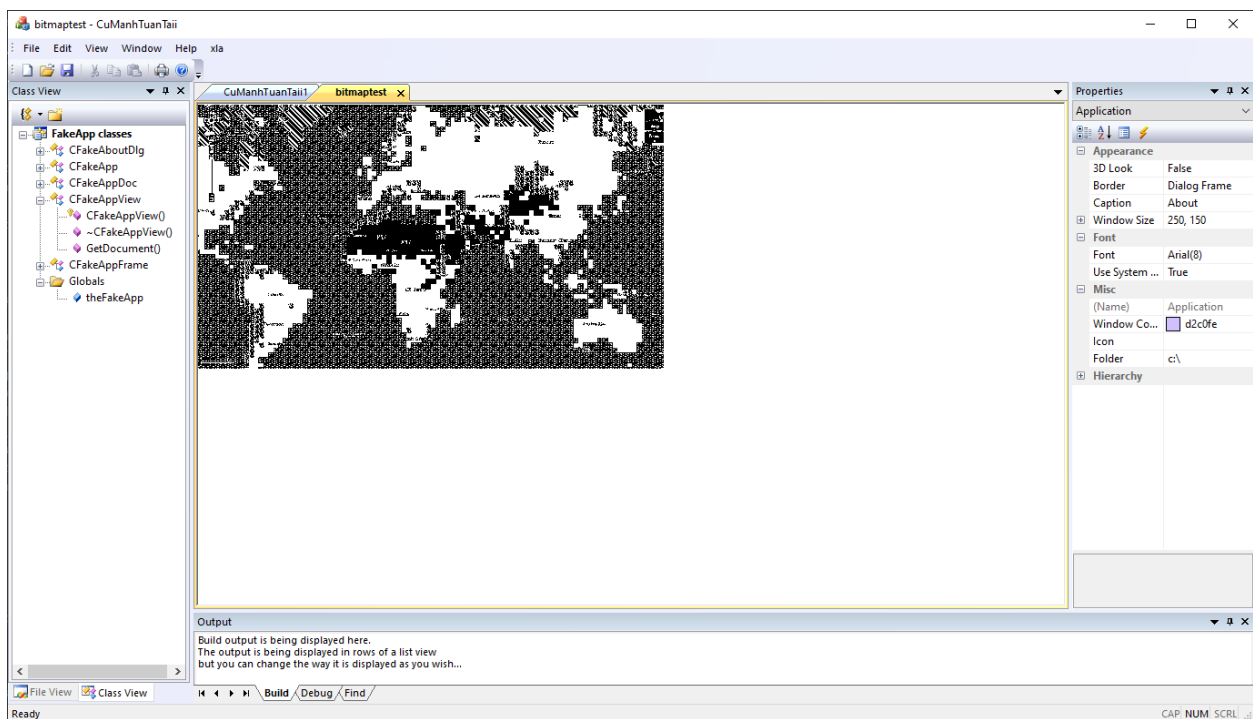
void CCuManhTuanTaiiView::OnX1aPhan2vung()
{
    CCuManhTuanTaiiDoc* pDoc = GetDocument();
    ASSERT_VALID(pDoc);
}

```

```

    if (!pDoc)
        return;
    // TODO: Add your command handler code here
    int i, j;
    byte a = 100, L = 255;
    for (i = 0; i < pDoc->biHeader.biHeight; i++)
        for (j = 0; j < pDoc->biHeader.biWidth; j++)
        {
            if ((pDoc->Data[i][j] <= a))
                pDoc->Data[i][j] = L;
            else
                pDoc->Data[i][j] = 0;
        }
    Invalidate();
}

```



Hình 3: Ảnh sau khi phân 2 vùng

Phân 3 vùng:

```

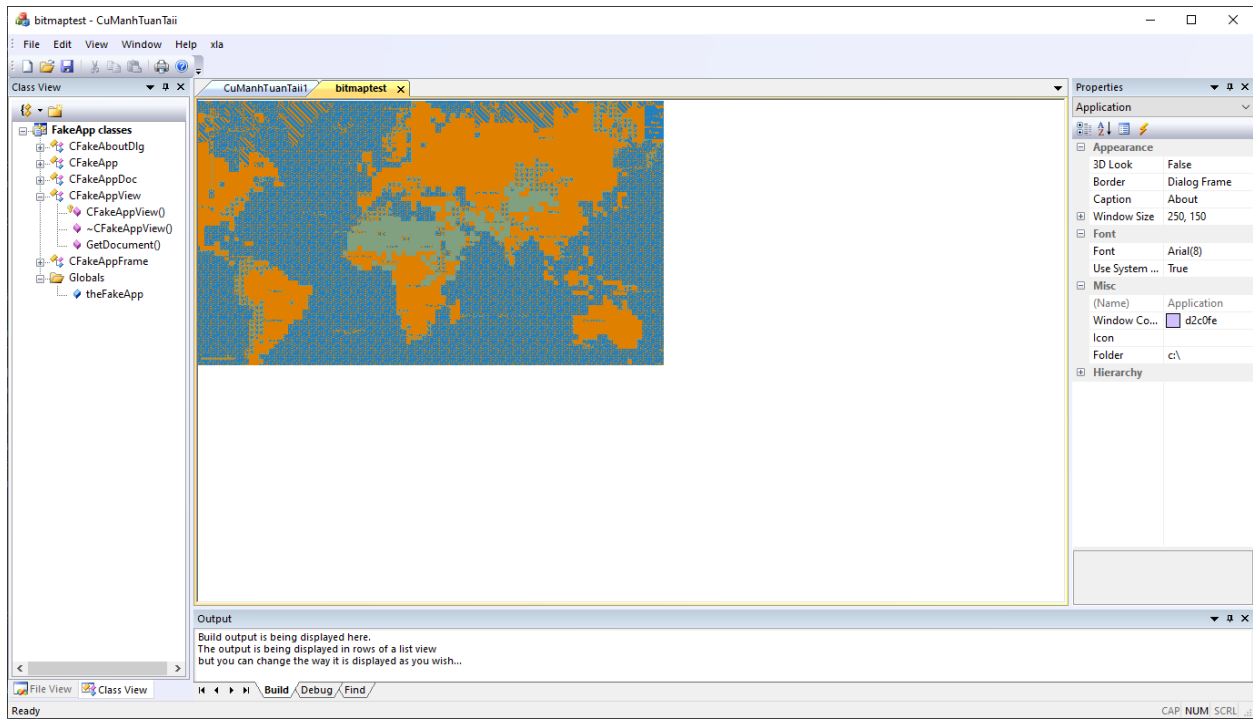
void CCuManhTuanTaiView::OnX1aPhan3vung()
{
    CCuManhTuanTaiDoc* pDoc = GetDocument();
    ASSERT_VALID(pDoc);
    if (!pDoc)
        return;
    // TODO: Add your command handler code here
    int i, j;
    byte a = 100, b = 200, L = 255;

```

```

int tong1, tong2, tong3;
int n1, n2, n3;
tong1 = tong2 = tong3 = n1 = n2 = n3 = 0;
for (i = 0; i < pDoc->biHeader.biHeight; i++)
    for (j = 0; j < pDoc->biHeader.biWidth; j++)
    {
        if ((pDoc->Data[i][j] <= a)) {
            tong1 += pDoc->Data[i][j];
            n1++;
        }
        else if ((pDoc->Data[i][j] <= b)) {
            tong2 += pDoc->Data[i][j];
            n2++;
        }
        else {
            tong3 += pDoc->Data[i][j];
            n3++;
        }
    }
for (i = 0; i < pDoc->biHeader.biHeight; i++)
    for (j = 0; j < pDoc->biHeader.biWidth; j++)
    {
        if ((pDoc->Data[i][j] <= a)) {
            pDoc->Data[i][j] = tong1 / n1;
        }
        else if ((pDoc->Data[i][j] <= b)) {
            pDoc->Data[i][j] = tong2 / n2;
        }
        else {
            pDoc->Data[i][j] = tong3 / n3;
        }
    }
    Invalidate();
}

```



Hình 4: Hình sau khi tách 3 vùng