Assignment 7

fillIDAT():

```
void fillIDAT(){
  idat = new byte[dataSize];
  idat[4] = 'I'; idat[5] = 'D'; idat[6] = 'A'; idat[7] = 'T';
  Deflater compresser = new Deflater();
  compresser.setInput(data);
  compresser.finish();

  // 1. deflate data into idat at position 8
    compressedDataLength = compresser.deflate(idat, 8, idat.length - 8);
    // 2. place compressedDataLength at position 0 of idat
    fillNumber(idat, 0, compressedDataLength);
    // 3. compute CRC for idat without the length
    crc32.reset();
    crc32.update(idat, 8, compressedDataLength);
    // 4. append CRC after compressed data
    fillNumber(idat, 8 + compressedDataLength, crc32.getValue());
    // idat = |length|"IDAT"|compressed data|CRC|
}
```

fillData():

```
void fillData(int type){ // example: all rows have filter type 0
    if (type == 0) {
        fillRow(0, 0);  // row 0 can only have type 0 or 1
        for (int row = 1; row < height; row++) fillRow(row, 0);
    } else if (type == 1) {
        fillRow(0, 1);
        for (int row = 1; row < height; row++) fillRow(row, 1);
    } else if (type == 2) {
        fillRow(0, 1);
        for (int row = 1; row < height; row++) fillRow(row, 2);
    } else if (type == 3) {
        fillRow(0, 1);
        for (int row = 1; row < height; row++) fillRow(row, 3);
    } else if (type == 4) {
        fillRow(0, 1);
        for (int row = 1; row < height; row++) fillRow(row, 4);
    }
}
```

File Sizes

Suffix shows the different filter types.

536 LenaRGB1.png
508 LenaRGB2.png
504 LenaRGB3.png
512 LenaRGB4.png
720 LenaRGB0.png

224 RAY1.png
272 RAY2.png

352 RAY3.png
260 RAY4.png
228 RAY0.png

For LenaRGB, the best filter type is filter type 3.
For RAY, the best filter type is filter type 1.