Main.cpp

```
#include "circle.h"
#include <iostream>
#include <cctype>
#include <fstream>

using namespace std;

int main()
{
    fstream radiusFileInput("radius.txt", ios::in);
    fstream radiusOutputFile("radius.dat", ios::out |
ios::binary);

    Circle c;

    int *radius = nullptr;
    int SIZE = 0;
    int temp;

    while (!radiusFileInput.eof())
    {
        radiusFileInput >> temp;
        SIZE++;
    }

    radius = new int[SIZE];

    radiusFileInput.close();
    radiusFileInput.open("radius.txt", ios::in);

    int count = 0;
    while (!radiusFileInput.eof())
```

```
    {
        radiusFileInput >> temp;
        radius[count] = temp;
        count++;
    }

    radiusFileInput.close();

    radiusOutputFile.write(reinterpret_cast<char *>(radius),
sizeof(radius));

    radiusOutputFile.close();

    radiusFileInput.open("radius.dat", ios::in | ios::binary);

    int newRadius[SIZE];

    radiusFileInput.read(reinterpret_cast<char *>(radius),
sizeof(radius));

    for (int i = 0; i < SIZE; i++)
        newRadius[i] = radius[i];

    fstream dataOutput("data.txt", ios::out);

    for (int i = 0; i < SIZE; i++)
    {
        cout << "\n---For a radius size of: " << newRadius[i] <<
"---";
        dataOutput << "\n---For a radius size of: " <<
newRadius[i] << "---";
        c.setRadius(newRadius[i]);
        cout << "\nThe circle area is: " << c.getArea();
```

```
        dataOutput << "\nThe circle area is: " << c.getArea();
        cout << "\nThe circle diameter is: " << c.getDiameter();
        dataOutput << "\nThe circle diameter is: " <<
c.getDiameter();
        cout << "\nThe circle circumference is: " <<
c.getCircumference();
        dataOutput << "\nThe circle circumference is: " <<
c.getCircumference() << endl;
    }

    dataOutput.close();

    return 0;
}
```

Circle.h

```
#ifndef CIRCLE_H
#define CIRCLE_H

class Circle
{
private:
    double radius;
    const double pi = 3.14159;

public:
    Circle()
    {
        radius = 0.0;
    }
    Circle(double r)
    {
        radius = r;
```

```
    }
    void setRadius(double);
    double getRadius();
    double getArea();
    double getDiameter();
    double getCircumference();
};
#endif
```

Circle.cpp

```
#include "circle.h"
#include <iostream>

using namespace std;

void Circle::setRadius(double input)
{
    radius = input;
}
double Circle::getRadius()
{
    return radius;
}
double Circle::getArea()
{
    double area = pi * radius * radius;
    return area;
}
double Circle::getDiameter()
{
    double diameter = radius * 2;
    return diameter;
}
```

```
double Circle::getCircumference()
{
    double circumference = 2 * pi * radius;
    return circumference;
}
```

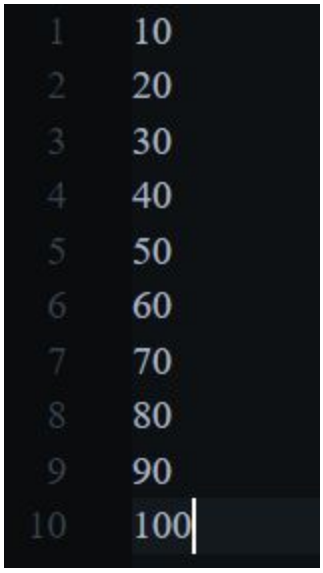
Output:

```
---For a radius size of: 10---
The circle area is: 314.159
The circle diameter is: 20
The circle circumference is: 62.8318
---For a radius size of: 20---
The circle area is: 1256.64
The circle diameter is: 40
The circle circumference is: 125.664
---For a radius size of: 30---
The circle area is: 2827.43
The circle diameter is: 60
The circle circumference is: 188.495
---For a radius size of: 40---
The circle area is: 5026.54
The circle diameter is: 80
The circle circumference is: 251.327
---For a radius size of: 50---
The circle area is: 7853.97
The circle diameter is: 100
The circle circumference is: 314.159
---For a radius size of: 60---
The circle area is: 11309.7
The circle diameter is: 120
The circle circumference is: 376.991
---For a radius size of: 70---
The circle area is: 15393.8
The circle diameter is: 140
The circle circumference is: 439.823
---For a radius size of: 80---
The circle area is: 20106.2
The circle diameter is: 160
The circle circumference is: 502.654
---For a radius size of: 90---
The circle area is: 25446.9
The circle diameter is: 180
The circle circumference is: 565.486
---For a radius size of: 100---
The circle area is: 31415.9
The circle diameter is: 200
The circle circumference is: 628.318
```

Data.txt

```
---For a radius size of: 10---
The circle area is: 314.159
The circle diameter is: 20
The circle circumference is: 62.8318

---For a radius size of: 20---
The circle area is: 1256.64
The circle diameter is: 40
The circle circumference is: 125.664

---For a radius size of: 30---
The circle area is: 2827.43
The circle diameter is: 60
The circle circumference is: 188.495

---For a radius size of: 40---
The circle area is: 5026.54
The circle diameter is: 80
The circle circumference is: 251.327

---For a radius size of: 50---
The circle area is: 7853.97
The circle diameter is: 100
The circle circumference is: 314.159

---For a radius size of: 60---
The circle area is: 11309.7
The circle diameter is: 120
The circle circumference is: 376.991

---For a radius size of: 70---
The circle area is: 15393.8
The circle diameter is: 140
The circle circumference is: 439.823

---For a radius size of: 80---
The circle area is: 20106.2
The circle diameter is: 160
The circle circumference is: 502.654

---For a radius size of: 90---
The circle area is: 25446.9
The circle diameter is: 180
The circle circumference is: 565.486

---For a radius size of: 100---
The circle area is: 31415.9
The circle diameter is: 200
The circle circumference is: 628.318
```

Radius.txt



Radius.dat