

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

```
1
2  ---For a radius size of: 10---
3  The circle area is: 314.159
4  The circle diameter is: 20
5  The circle circumference is: 62.8318
6
7  ---For a radius size of: 20---
8  The circle area is: 1256.64
9  The circle diameter is: 40
10 The circle circumference is: 125.664
11
12 ---For a radius size of: 30---
13 The circle area is: 2827.43
14 The circle diameter is: 60
15 The circle circumference is: 188.495
16
17 ---For a radius size of: 40---
18 The circle area is: 5026.54
19 The circle diameter is: 80
20 The circle circumference is: 251.327
21
22 ---For a radius size of: 50---
23 The circle area is: 7853.97
24 The circle diameter is: 100
25 The circle circumference is: 314.159
26
27 ---For a radius size of: 60---
28 The circle area is: 11309.7
29 The circle diameter is: 120
30 The circle circumference is: 376.991
31
32 ---For a radius size of: 70---
33 The circle area is: 15393.8
34 The circle diameter is: 140
35 The circle circumference is: 439.823
36
37 ---For a radius size of: 80---
38 The circle area is: 20106.2
39 The circle diameter is: 160
40 The circle circumference is: 502.654
41 |
42 ---For a radius size of: 90---
43 The circle area is: 25446.9
44 The circle diameter is: 180
45 The circle circumference is: 565.486
46
47 ---For a radius size of: 100---
48 The circle area is: 31415.9
49 The circle diameter is: 200
50 The circle circumference is: 628.318
```

Radius.txt

1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90
10	100

Radius.dat

1	
2	???