Reference Manual

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1 File Index

1.1 File List

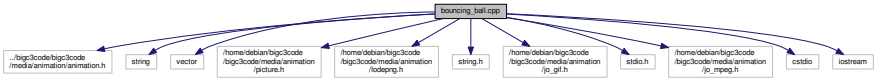
Here is a list of all files with brief descriptions:

2 File Documentation

2.1 bouncing_ball.cpp File Reference

```
#include "../bigc3code/bigc3code/media/animation/animation.h"
#include <iostream>
```

Include dependency graph for bouncing_ball.cpp:



Functions

- int main ()

Variables

- const double DELTA_T = 0.1
- const double GRAVITY = 9.81
- const double BOUNCE_LOSS = 0.8

2.1.1 Detailed Description

Media P6.32 Using the code in the `media/animation` directory of the companion code, show an animation of a bouncing ball. The ball is dropped from an initial height, and its velocity is accelerated by the gravitational force, as described in Exercise •• Engineering P4.23. When the ball hits the ground, the velocity is reversed but dampened by a small percentage.

Figure 1 Bouncing Ball

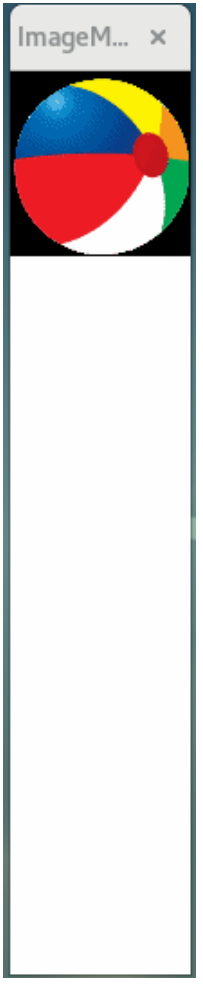


Figure 2 Bouncing Ball

2.1.2 Function Documentation

2.1.2.1 main()

```
int main ( )
```

Definition at line 12 of file bouncing_ball.cpp.

```
13 {
14     double height;
15     cout << "Input value for initial height: " << endl;
16     cin >> height;
17     Picture pic("ball2.png");
18     Animation anim("p6-32-result.gif", pic.width(), height+pic.height());
19     double velocity = 0;
20     double iPosition = height;
21     bool done = false;
22     anim.add(pic, 0, 0);
23     anim.frame();
24     while (!done)
25     {
26         bool ground = true;
27         while(ground)
28         {
29             velocity = velocity - GRAVITY * DELTA_T;
30             iPosition = iPosition + velocity * DELTA_T;
31             anim.add(pic, 0, height - iPosition);
32             anim.frame();
33             if (iPosition <= 0)
```

```
34                  ground = false;
35          }
36          velocity = - BOUNCE_LOSS * velocity;
37          iPosition = 0;
38          if (velocity <= 10)
39              done = true;
40      }
41      anim.close();
42      return 0;
43  }
```

2.1.3 Variable Documentation

2.1.3.1 BOUNCE_LOSS

```
const double BOUNCE_LOSS = 0.8
```

Definition at line 11 of file bouncing_ball.cpp.

2.1.3.2 DELTA_T

```
const double DELTA_T = 0.1
```

Definition at line 9 of file bouncing_ball.cpp.

2.1.3.3 GRAVITY

```
const double GRAVITY = 9.81
```

Definition at line 10 of file bouncing_ball.cpp.

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