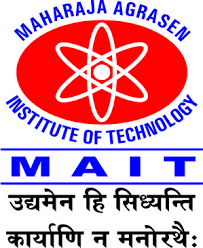
Projectile Simulation

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Computer Graphics And Multimedia Project

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**Source Code**

//Projectile Simulation

#include<conio.h>

#include<stdlib.h>

#include<stdio.h>

#include<math.h>

#include<graphics.h>

#include<time.h>

#include<dos.h>

#include<iostream.h>

float calculate\_dist(float u,float t,float a)

{

return (u\*t\*1.0+a\*t\*t/2.0);

}

void draw\_circle(int x,int y,int r,int c)

{

circle(x,y,r);

setfillstyle(1,c);

floodfill(x,y,15);

}

struct coor

{

int x;

int y;

};

void main()

{

clrscr();

textbackground(YELLOW);

textcolor(0);

int ch,flag=0;

char user[30],pas[30],h[30];

//................welcome page ..........

for(int i=57;i>0;i--)

{

clrscr();

textbackground(YELLOW);

cout<<"\n\n\n\t\t----------------------------------------------------";

cout<<"\n\t\t\t!!!!! PROJECTILE SIMULATION !!!!";

cout<<"\n\t\t----------------------------------------------------" ;

textcolor(0);

gotoxy(i,11);

cout<<" @@@@@@@@@@@";

gotoxy(i,12);

cout<<" @@@@@'''''''";

gotoxy(i,13);

cout<<" @ \_\_\_\_ \_\_\_\_\_\_\_\_\_\_ ";

gotoxy(i,14);

cout<<" II\_\_[w] | [i] [z] | ";

gotoxy(i,15);

cout<<" {======|\_|~~~~~~~~~| ";

gotoxy(i,16);

cout<<" /oO--000'"<<"`-OO---OO-' ";

gotoxy(0,17);

cout<<"\n--------------------------------------------------------------------------------";

delay(70);

cout<<"\n\n\n\t\t\t\t press any key to continue..../";

}

getch();

clrscr();

int gd=DETECT,gm;

initgraph(&gd,&gm,"C:\\TC\\BGI");

settextstyle(DEFAULT\_FONT,HORIZ\_DIR,2);

outtextxy(170,180," LOADING,PLEASE WAIT");

int x=170;

for(i=0;i<300;i++)

{

delay(2);

line(x,200,x,220);

x++;

}

cleardevice();

int v,ht;

printf("\n\n\n\n\n\n\t\tEnter the Height(300 max and 10 min): \t");

scanf("%d",&ht);

printf("\n\n\t\tEnter the Velocity(15 max): \t");

scanf("%d",&v);

textcolor(15);

coor arr[1000];

int k=0;

if(ht>300 || ht<10)

{

printf("\n\nheight value exceeds");

getch();

return;

}

if(v<0 || v>30)

{

printf("/n/nvelocity value exceeds");

getch();

return;

}

cleardevice();

settextstyle(DEFAULT\_FONT,HORIZ\_DIR,2);

outtextxy(170,180," LOADING,PLEASE WAIT");

x=170;

for(i=0;i<300;i++)

{

delay(8);

line(x,200,x,220);

x++;

}

clrscr();

setbkcolor(BLUE);

float height=100+ht;

float g=9.8;

float u1=0,u2x=v,u2y=0;

float x1=10,x2=10,y1=100,y2=100;

float t=00.1;

int times=(height/1.3);

while(times--)

{

while(y1+10<=height)

{

line(0,height,getmaxx(),height);

y1+=calculate\_dist(u1,t,g);

x2+=calculate\_dist(u2x,t,0);

y2+=calculate\_dist(u2y,t,g);

arr[k].x=x2;

arr[k].y=y2;

k++;

draw\_circle(x1,y1,10,14);

draw\_circle(x2,y2,10,4);

u1+=g\*t;

u2y+=g\*t;

delay(200\*t);

cleardevice();

setbkcolor(BLUE);

}

u1\*=-1.0/1.3;

u2y\*=-1.0/1.3;

while(u1<=0)

{

line(0,height,getmaxx(),height);

y1+=calculate\_dist(u1,t,g);

x2+=calculate\_dist(u2x,t,0);

y2+=calculate\_dist(u2y,t,g);

draw\_circle(x1,y1,10,14);

draw\_circle(x2,y2,10,4);

arr[k].x=x2;

arr[k].y=y2;

k++;

u1+=g\*t;

u2y+=g\*t;

delay(200\*t);

cleardevice();

setbkcolor(BLUE);

textcolor(6);

}

u1\*=-1;

u2y\*=-1;

}

delay(200\*t);

line(0,height,getmaxx(),height);

for(i=0;i<k;i++)

{

int x=arr[i].x;

int y=arr[i].y;

putpixel(x,y,15);

delay(200\*t);

}

float range=(v\*1.0)\*sqrt(2\*ht/9.8);

float energy\_lost\_factor=0.23;

float time=sqrt(2\*ht/9.8);

gotoxy(200,200);

printf("\t\t\t\t\t\tRANGE: %f\n\t\t\t\t\t\tENERGY\_LOST\_FACTOR: %f\n\t\t\t\t\t\tTime: %f",range,energy\_lost\_factor,time);

getch();

closegraph();

}

**OUTPUT SCREENS**



