1. Letter M Program

**package** Drawings;

**import** java.awt.\*;

**import** java.applet.\*;

**public** **class** LetterM **extends** Applet {

**int**[] x = { 20, 20, 30, 40, 40 };

**int**[] y = { 40, 20, 30, 20, 40 };

**public** **void** init() {

setSize(330,300);

}

**public** **void** paint(Graphics g) {

g.drawPolygon(x,y,5);

}

}

2. Data Type – Integer

**package** data\_types;

**import** java.awt.\*;

**import** java.applet.\*;

**public** **class** Data\_Type\_1 **extends** Applet {

**int** x = 10;

**int** y = 4;

**int** answer;

**public** **void** init() {

}

**public** **void** paint(Graphics g) {

answer = x + y;

g.drawString ("The answeer is :" + answer, 20,20);

}

}

3. String Objects one

**package** data\_types;

**import** java.applet.\*;

**import** java.awt.\*;

**public** **class** String\_Objects **extends** Applet {

String name = " pippi longstocking";

**public** **void** init() {

setSize(400, 300);

}

**public** **void** paint(Graphics g) {

g.drawString("The name is: " + name, 20, 20);

name = name.toUpperCase();

g.drawString("The name is: " + name, 20, 40);

name = name.toLowerCase();

g.drawString("The name is: " + name, 20, 60);

}

}

3.1 String Objects 2

**package** data\_types;

**import** java.applet.\*;

**import** java.awt.\*;

**public** **class** String\_Objects2 **extends** Applet {

String name = "pippi longstocking";

**int** len;

**int** space;

String firstName;

String lastName;

**char** firstInitial;

**char** lastInitial;

**public** **void** init() {

setSize(400, 300);

}

**public** **void** paint(Graphics g) {

len = name.length();

space = name.indexOf(' ');

firstName = name.substring(1,space);

// lastName = name.substring(space + 1 , len);

lastName = name.substring(space + 2);

g.drawString("FirstName : " + firstName, 20, 20);

g.drawString("LastName : " + lastName, 20, 40);

firstInitial = name.charAt(0);

lastInitial = name.charAt(space + 1);

firstInitial = Character.*toUpperCase*(firstInitial);

lastInitial = Character.*toUpperCase*(lastInitial);

g.drawString("First Initial : " + firstInitial, 200, 20);

g.drawString("Last Initial : " + lastInitial, 200, 40);

firstName = firstInitial + firstName;

lastName = lastInitial + lastName;

g.drawString("First name : " + firstName, 20, 80);

g.drawString("Last name : " + lastName, 20, 100);

name = lastName + ", " + firstName;

g.drawString("The new name is: " + name, 20,140);

}

}

4. Components

**import** java.applet.\*;

**import** java.awt.\*;

**public** **class** Components **extends** Applet {

Label nameLabel;

Label genderLabel;

Label ageLabel;

TextField nameInput;

Button submit;

Choice ageInput;

CheckboxGroup genderInput;

**public** **void** init() {

setSize(300, 200);

nameLabel = **new** Label("Enter your name: ");

nameInput = **new** TextField(20);

submit = **new** Button("Submit");

genderLabel = **new** Label("Select your gender: ");

ageLabel = **new** Label("Select your age: ");

ageInput = **new** Choice();

ageInput.addItem("15");

ageInput.addItem("16");

ageInput.addItem("17");

ageInput.addItem("18");

ageInput.addItem("19");

ageInput.addItem("20");

genderInput = **new** CheckboxGroup();

add(nameLabel);

add(nameInput);

add(genderLabel);

add(**new** Checkbox("Male", genderInput, **true**));

add(**new** Checkbox("Female", genderInput, **false**));

add(**new** Checkbox("uncertain", genderInput, **false**));

add(ageLabel);

add(ageInput);

add(submit);

}

**public** **void** paint(Graphics g) {

}

}

5. Events one

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.awt.event.ActionEvent;

**import** java.awt.event.ActionListener;

**public** **class** Events **extends** Applet **implements** ActionListener {

Label nameLabel;

Label genderLabel;

Label ageLabel;

TextField nameInput;

Button submit;

Choice ageInput;

CheckboxGroup genderInput;

String name;

String gender;

**int** age;

**public** **void** init() {

setSize(300, 200);

nameLabel = **new** Label("Enter your name: ");

genderLabel = **new** Label("Select your gender: ");

ageLabel = **new** Label("Select your age: ");

nameInput = **new** TextField(20);

submit = **new** Button("Submit");

ageInput = **new** Choice();

ageInput.addItem("15");

ageInput.addItem("16");

ageInput.addItem("17");

ageInput.addItem("18");

ageInput.addItem("19");

genderInput = **new** CheckboxGroup();

add(nameLabel);

add(nameInput);

add(genderLabel);

add(**new** Checkbox("Male", genderInput, **true**));

add(**new** Checkbox("Female", genderInput, **false**));

add(ageLabel);

add(ageInput);

add(submit);

submit.addActionListener(**this**);

}

**public** **void** paint(Graphics g) {

g.drawString("Name: " + name, 20, 150);

g.drawString("Gender: " + gender, 20, 170);

g.drawString("Age: " + age, 20, 190);

}

**public** **void** actionPerformed (ActionEvent e) {

name = nameInput.getText();

gender = genderInput.getSelectedCheckbox().getLabel();

age = Integer.*parseInt*(ageInput.getSelectedItem());

repaint();

}

}

5.1 Events 2

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.awt.event.ActionEvent;

**import** java.awt.event.ActionListener;

**public** **class** Events2 **extends** Applet **implements** ActionListener {

Label nameLabel;

Label genderLabel;

Label ageLabel;

TextField nameInput;

Button submit;

Choice ageInput;

CheckboxGroup genderInput;

String name;

String gender;

**int** age;

**public** **void** init() {

setSize(300, 200);

nameLabel = **new** Label("Enter your name: ");

genderLabel = **new** Label("Select your gender: ");

ageLabel = **new** Label("Select your age: ");

nameInput = **new** TextField(20);

submit = **new** Button("Submit");

ageInput = **new** Choice();

ageInput.addItem("15");

ageInput.addItem("16");

ageInput.addItem("17");

ageInput.addItem("18");

ageInput.addItem("19");

genderInput = **new** CheckboxGroup();

add(nameLabel);

add(nameInput);

add(genderLabel);

add(**new** Checkbox("Male", genderInput, **true**));

add(**new** Checkbox("Female", genderInput, **false**));

add(ageLabel);

add(ageInput);

add(submit);

submit.addActionListener(**this**);

}

**public** **void** paint(Graphics g) {

**if** (name == **null**) {

g.setColor(Color.***red***);

g.drawString("Please enter a name!!!" + name, 20, 130);

g.setColor(Color.***black***);

}

**else** **if**(name.length()<=0) {

g.setColor(Color.***red***);

g.drawString("Please enter a name!!!" + name, 20, 130);

g.setColor(Color.***black***);

}

**else**

g.drawString("Name: " + name, 20, 150);

g.drawString("Gender: " + gender, 20, 170);

g.drawString("Age: " + age, 20, 190);

}

**public** **void** actionPerformed(ActionEvent e) {

name = nameInput.getText();

gender = genderInput.getSelectedCheckbox().getLabel();

age = Integer.*parseInt*(ageInput.getSelectedItem());

repaint();

}

}

6. Switch Statement

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.awt.event.ActionEvent;

**import** java.awt.event.ActionListener;

**public** **class** switch\_Statement **extends** Applet **implements** ActionListener {

Label inputLabel;

TextField userInput;

**char** userGuess;

**public** **void** init() {

inputLabel = **new** Label("Please enter a character to learn if it is a vowel or a consonant.");

userInput = **new** TextField(2);

add(inputLabel);

add(userInput);

userInput.addActionListener(**this**);

}

**public** **void** paint(Graphics g) {

**switch** (userGuess) {

**case** 'a':

g.drawString("a is a vowel.", 20, 50);

**break**;

**case** 'e':

g.drawString("e is a vowel.", 20, 50);

**break**;

**case** 'i':

g.drawString("i is a vowel.", 20, 50);

**break**;

**case** 'o':

g.drawString("o is a vowel.", 20, 50);

**break**;

**case** 'u':

g.drawString("u is a vowel.", 20, 50);

**break**;

**default**:

g.drawString(userGuess + " is a consonant", 20, 50);

**break**;

}

}

**public** **void** actionPerformed(ActionEvent e) {

userGuess = userInput.getText().charAt(0);

userGuess = Character.*toLowerCase*(userGuess);

repaint();

}

}

7. Image Object

**import** java.applet.\*;

**import** java.awt.\*;

**public** **class** Image\_Object **extends** Applet{

Image poster;

**public** **void** init() {

setSize(600,450);

poster =getImage(getDocumentBase(),"RulesPoster.jpg");

}

**public** **void** paint(Graphics g) {

**int** width = poster.getWidth(**this**);

**int** height = poster.getHeight(**this**);

g.drawImage(poster, 20, 20, width/2,height/2,**this**);

}

}

8. Audio clip Object

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.awt.event.ActionEvent;

**import** java.awt.event.ActionListener;

**public** **class** Sound\_Object **extends** Applet **implements** ActionListener {

AudioClip music;

Button play, loop, stop;

**public** **void** init() {

music = getAudioClip(getDocumentBase(), "never\_know.wav");

play = **new** Button("Play");

loop = **new** Button("Loop");

stop = **new** Button("Stop");

play.addActionListener(**this**);

loop.addActionListener(**this**);

stop.addActionListener(**this**);

add(play);

add(loop);

add(stop);

}

**public** **void** paint(Graphics g) {

}

**public** **void** actionPerformed(ActionEvent e) {

**if** (e.getSource() == play) {

music.play();

}

**if** (e.getSource() == loop) {

music.loop();

}

**if** (e.getSource() == stop) {

music.stop();

}

repaint();

}

}

9. Mouse Events

**import** java.awt.\*;

**import** java.applet.\*;

**import** java.awt.event.\*;

**public** **class** Mouse\_Events **extends** Applet **implements** MouseListener {

**int** x, y;

**public** **void** init() {

addMouseListener(**this**);

}

**public** **void** paint(Graphics g) {

g.drawString("Mouse is at: " + x + "," + y, x, y);

}

**public** **void** mousePressed(MouseEvent e) {

x = e.getX();

y = e.getY();

repaint();

}

**public** **void** mouseReleased(MouseEvent e) {

}

**public** **void** mouseClicked(MouseEvent e) {

}

**public** **void** mouseEntered(MouseEvent e) {

}

**public** **void** mouseExited(MouseEvent e) {

}

}

9.1 Mouse Listener

**import** java.awt.\*;

**import** java.applet.\*;

**import** java.awt.event.\*;

**public** **class** Mouse\_Events\_Listener **extends** Applet **implements** MouseListener, MouseMotionListener {

**int** x, y;

String event;

**public** **void** init() {

addMouseListener(**this**);

addMouseMotionListener(**this**);

}

**public** **void** paint(Graphics g) {

// g.drawString("Mouse is " + event + "at: " + x + "," + y, x, y);

g.fillOval(x, y, 50, 50);

}

**public** **void** mousePressed(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Pressed";

repaint();

}

**public** **void** mouseReleased(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Released";

repaint();

}

**public** **void** mouseClicked(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Clicked";

repaint();

}

**public** **void** mouseEntered(MouseEvent e) {

showStatus("Mouse Entered Applet Area");

}

**public** **void** mouseExited(MouseEvent e) {

showStatus("Mouse Exited Applet Area");

}

**public** **void** update(Graphics g) {

paint(g);

}

**public** **void** mouseMoved(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "MOving";

repaint();

}

**public** **void** mouseDragged(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Dragging";

repaint();

}

}

9.2 Mouse Triggers

**import** java.awt.\*;

**import** java.applet.\*;

**import** java.awt.event.\*;

**public** **class** Mouse\_Events\_Triggers **extends** Applet **implements** MouseListener {

**int** x, y;

String event;

**public** **void** init() {

addMouseListener(**this**);

}

**public** **void** paint(Graphics g) {

g.drawString("Mouse is " + event + "at: " + x + "," + y, x, y);

// g.fillOval(x,y,50,50);

}

**public** **void** mousePressed(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Pressed";

repaint();

}

**public** **void** mouseReleased(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Released";

repaint();

}

**public** **void** mouseClicked(MouseEvent e) {

x = e.getX();

y = e.getY();

event = "Clicked";

repaint();

}

**public** **void** mouseEntered(MouseEvent e) {

showStatus("Mouse Entered Applet Area");

}

**public** **void** mouseExited(MouseEvent e) {

showStatus("Mouse Exited Applet Area");

}

}

9.3 Mouse Clickable Region

**import** java.awt.\*;

**import** java.applet.\*;

**import** java.awt.event.\*;

**public** **class** MouseEvents\_ClickableRegion **extends** Applet **implements** MouseListener {

**int** x, y;

**public** **void** init() {

addMouseListener(**this**);

}

**public** **void** paint(Graphics g) {

g.setColor(Color.***black***);

g.drawRect(50, 50, 100, 100);

**if** (x > 50 && x < 150 && y > 50 && y < 150) {

g.setColor(Color.***GREEN***);

g.fillRect(50, 50, 100, 100);

} **else** {

g.setColor(Color.***red***);

g.fillRect(50, 50, 100, 100);

}

}

**public** **void** mouseClicked(MouseEvent e) {

}

**public** **void** mouseEntered(MouseEvent e) {

}

**public** **void** mouseExited(MouseEvent e) {

}

**public** **void** mousePressed(MouseEvent e) {

x = e.getX();

y = e.getY();

repaint();

}

**public** **void** mouseReleased(MouseEvent e) {

}

}

10. Keyboard Events

**import** java.awt.\*;

**import** java.applet.\*;

**import** java.awt.event.\*;

**public** **class** Keyboard\_Events **extends** Applet **implements** KeyListener {

**int** number = 0;

**char** keyChar = ' ';

String string1 = " ";

String string2 = " ";

String string3 = " ";

String string4 = " ";

**public** **void** init() {

**this**.requestFocus();

addKeyListener(**this**);

setSize(300, 200);

}

**public** **void** paint(Graphics g) {

g.drawString("NUmber of keys pressed is: " + number, 20, 20);

g.drawString("Character pressed is: " + keyChar, 20, 40);

g.drawString("Key pressed is: " + string1, 20, 60);

g.drawString("Key released is: " + string4, 20, 80);

g.drawString("Action key pressed is: " + string2, 20, 100);

g.drawString(string3, 20, 120);

}

**public** **void** keyPressed(KeyEvent e) {

number++;

string1 = e.*getKeyText*(e.getKeyCode());

**if** (e.getKeyCode() == e.***VK\_UP***) {

string2 = "Up Key was pressed";

}

**if** (e.getKeyCode() == e.***VK\_ENTER***) {

string2 = "Enter Key was pressed";

}

repaint();

}

**public** **void** keyReleased(KeyEvent e) {

string4 = e.*getKeyText*(e.getKeyCode());

repaint();

}

**public** **void** keyTyped(KeyEvent e) {

keyChar = e.getKeyChar();

**if** (keyChar == 'x') {

string3 = "The key lower case x was pressed";

}

repaint();

}

}

10.1 Keyboard with frame

**import** java.awt.\*;

**import** java.applet.\*;

**import** java.awt.event.\*;

**public** **class** Keyboard\_player\_withFrame **extends** Applet **implements** KeyListener {

**int** x = 200, y = 200;

**public** **void** init() {

**this**.requestFocus();

addKeyListener(**this**);

setSize(400, 400);

}

**public** **void** paint(Graphics g) {

g.drawRect(20, 20, 340, 340);

g.fillRect(x, y, 20, 20);

}

**public** **void** keyPressed(KeyEvent e) {

**if** (e.getKeyCode() == e.***VK\_UP***) {

**if** (y > 20) {

y = y - 10;

}

}

**if** (e.getKeyCode() == e.***VK\_DOWN***) {

**if** (y < 340) {

y = y + 10;

}

}

**if** (e.getKeyCode() == e.***VK\_LEFT***) {

**if** (x > 20) {

x = x - 10;

}

}

**if** (e.getKeyCode() == e.***VK\_RIGHT***) {

**if** (x < 340) {

x = x + 10;

}

}

repaint();

}

**public** **void** keyReleased(KeyEvent e) {

}

**public** **void** keyTyped(KeyEvent e) {

}

}

11. Animation - Timer1

**package** animation;

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.util.Timer;

**import** java.util.TimerTask;

**public** **class** Timer1 **extends** Applet {

Timer timer;

**int** ball\_x = 10;

**int** ball\_y = 10;

**int** ball\_x\_vel = 2;

**int** ball\_y\_vel = 2;

**int** refreshRate = 100;

**public** **void** init() {

timer = **new** Timer();

timer.schedule(**new** TimerTask() {

**public** **void** run() {

ball\_x = ball\_x + ball\_x\_vel;

ball\_y = ball\_y + ball\_y\_vel;

repaint();

}

}, 0, refreshRate);

}

**public** **void** paint(Graphics g) {

g.fillOval(ball\_x, ball\_y, 20, 20);

}

}

11.2 Timer 2

**package** animation;

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.util.Timer;

**import** java.util.TimerTask;

**public** **class** Timer2 **extends** Applet {

Timer timer;

**int**[] ball = { 10, 10 };

**int**[] ball\_vel = { 2, 5 };

**int** ball\_size = 20;

**int** refreshRate = 100;

**int** size = 200;

**int** rect\_left = 5;

**int** rect\_top = 5;

**int** rect\_right = rect\_left + size;

**int** rect\_bottom = rect\_top + size;

**public** **void** init() {

setSize(300, 300);

timer = **new** Timer();

timer.schedule(**new** TimerTask() {

**public** **void** run() {

bounceBall();

repaint();

}

}, 0, refreshRate);

}

**public** **void** bounceBall() {

ball[0] = ball[0] + ball\_vel[0];

ball[1] = ball[1] + ball\_vel[1];

**if** (ball[0] <= rect\_left) {

ball\_vel[0] = -ball\_vel[0];

}

**if** (ball[0] >= rect\_right - ball\_size) {

ball\_vel[0] = -ball\_vel[0];

}

**if** (ball[1] <= rect\_top) {

ball\_vel[1] = -ball\_vel[1];

}

**if** (ball[1] >= rect\_bottom - ball\_size) {

ball\_vel[1] = -ball\_vel[1];

}

}

**public** **void** paint(Graphics g) {

g.setColor(Color.***BLACK***);

g.drawRect(rect\_left, rect\_top, size, size);

g.setColor(Color.***magenta***);

g.fillOval(ball[0], ball[1], 20, 20);

}

}

11.3 Timer 3

**package** animation;

**import** java.applet.\*;

**import** java.awt.\*;

**import** java.util.Timer;

**import** java.util.TimerTask;

**import** java.awt.event.\*;

**public** **class** Timer3 **extends** Applet **implements** MouseListener, MouseMotionListener {

Timer timer;

**int**[] ball = { 10, 10 };

**int**[] ball\_vel = { 2, 5 };

**int** ball\_size = 20;

**int** refreshRate = 100;

**int**[] mouse = { 0, 0 };

**int** size = 200;

**int** rect\_left = 5;

**int** rect\_top = 5;

**int** rect\_right = rect\_left + size;

**int** rect\_bottom = rect\_top + size;

**public** **void** init() {

setSize(300, 300);

timer = **new** Timer();

addMouseListener(**this**);

addMouseMotionListener(**this**);

timer.schedule(**new** TimerTask() {

**public** **void** run() {

bounceBall();

repaint();

}

}, 0, refreshRate);

}

**public** **void** bounceBall() {

ball[0] = ball[0] + ball\_vel[0];

ball[1] = ball[1] + ball\_vel[1];

**if** (ball[0] <= rect\_left) {

ball\_vel[0] = -ball\_vel[0];

}

**if** (ball[0] >= rect\_right - ball\_size) {

ball\_vel[0] = -ball\_vel[0];

}

**if** (ball[1] <= rect\_top) {

ball\_vel[1] = -ball\_vel[1];

}

**if** (ball[1] >= rect\_bottom - ball\_size) {

ball\_vel[1] = -ball\_vel[1];

}

}

**public** **void** paint(Graphics g) {

g.setColor(Color.***BLACK***);

g.drawRect(rect\_left, rect\_top, size, size);

g.setColor(Color.***magenta***);

g.fillOval(ball[0], ball[1], 20, 20);

g.setColor(Color.***green***);

g.fillRect(mouse[0] - 10, mouse[1] - 10, 20, 20);

}

**public** **void** mouseDragged(MouseEvent e) {

}

**public** **void** mouseMoved(MouseEvent e) {

mouse[0] = e.getX();

mouse[1] = e.getY();

repaint();

}

**public** **void** mouseClicked(MouseEvent e) {

mouse[0]=e.getX();

mouse[1] =e.getY();

**if**(mouse[0] + 10 >= ball[0] && mouse[0]-10 <= ball[0] + ball\_size && mouse[1] + 10 >= ball[1] && mouse[1]-10 <= ball[1] + ball\_size) {

timer.cancel();

}

repaint();

}

**public** **void** mouseEntered(MouseEvent e) {

}

**public** **void** mouseExited(MouseEvent e) {

}

**public** **void** mousePressed(MouseEvent e) {

}

**public** **void** mouseReleased(MouseEvent e) {

}

}