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## Department of Computer Applications

Course Code: 23CAT606

Course Name: Java Programming

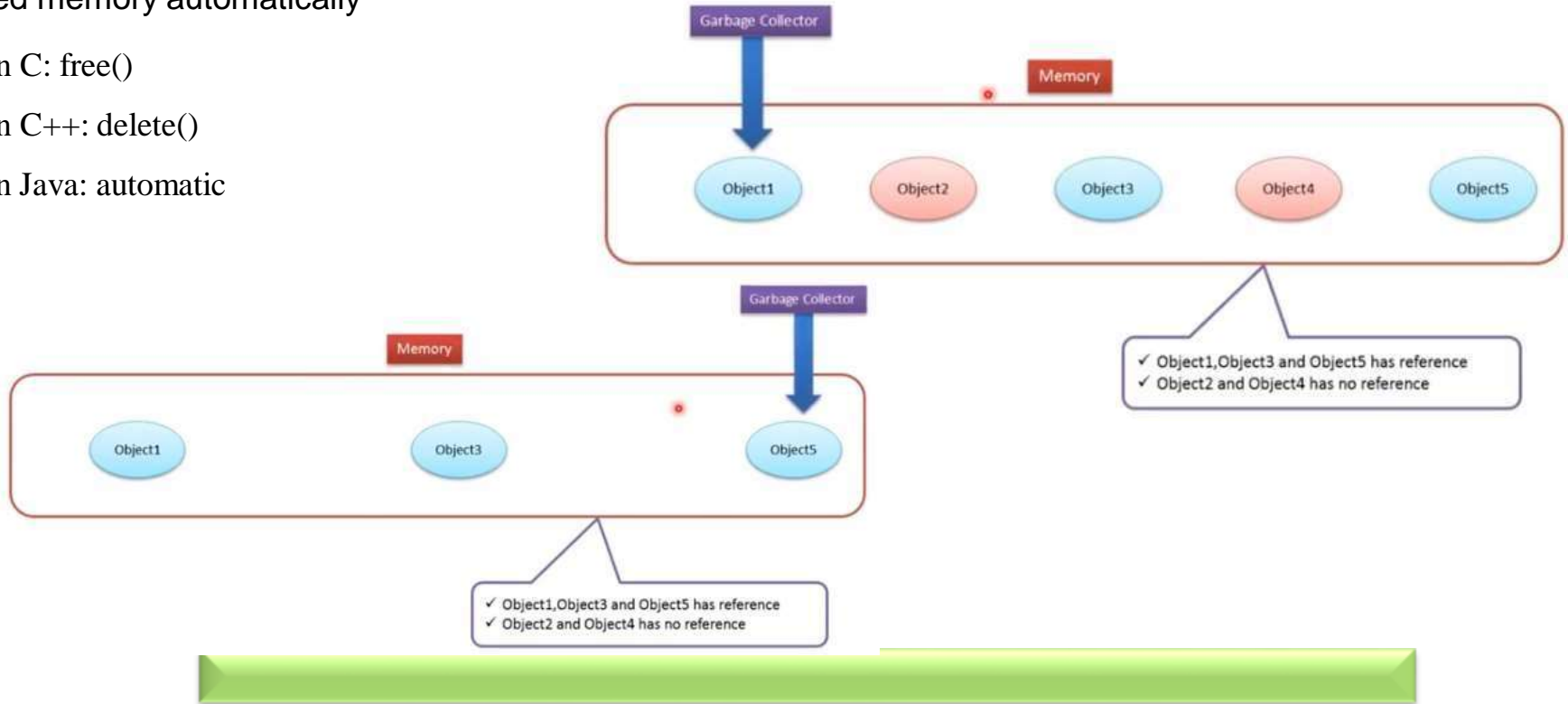
Unit II: Package

Topic 11 : Garbage Collection



Garbage Collection is process of reclaiming the runtime unused memory automatically

1. In C: free()
2. In C++: delete()
3. In Java: automatic



# How objects are created in Java?

1. Invoking new operator
2. Calling the new operator the JVM will do the following
  - Allocate memory
  - Assign fields their default values
  - Run the Constructor
  - A reference is returned.

## Methods

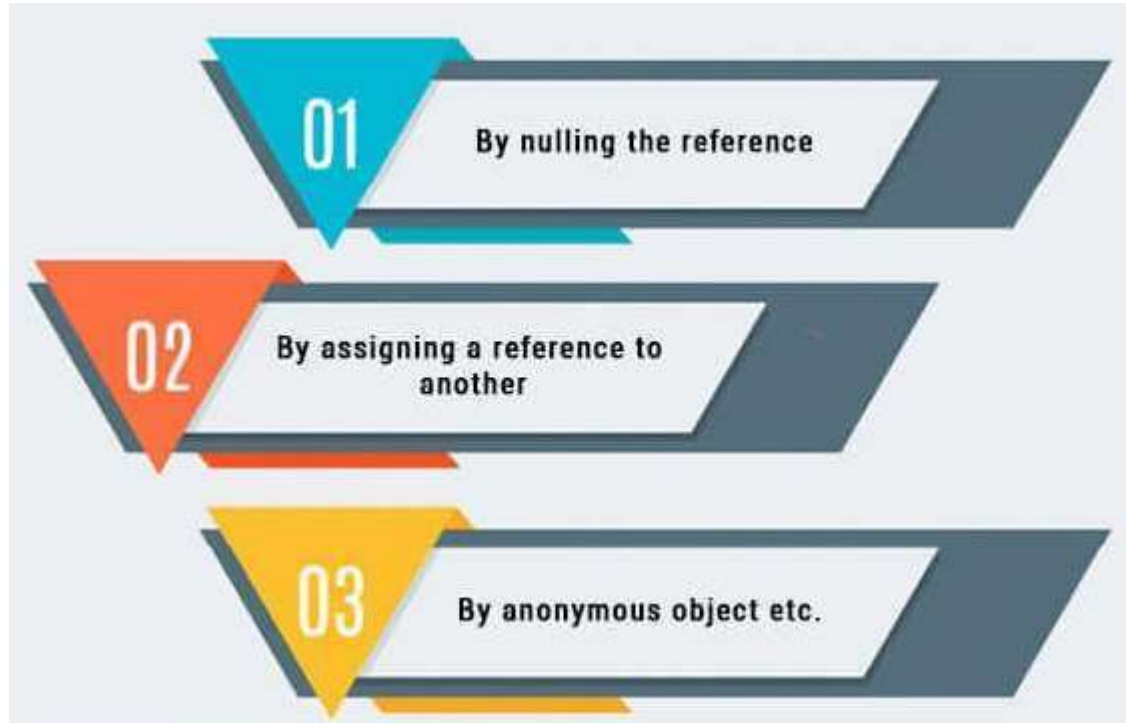
`finalize()`

```
protected void finalize(){}
```

`gc()`

```
public static void gc(){}
```

# How can an object be unreferenced?



# How can an object be unreferenced?



By Nulling the Reference

```
Employee e=new Employee();  
e=null;
```

By assigning a reference to another

```
Employee e1=new Employee();  
Employee e2=new Employee();  
e1=e2;
```

By anonymous object:  
**new** Employee();



```
public class TestGarbage1
```

```
{
```

```
    public void finalize()
```

```
    {
```

```
        System.out.println("object is garbage collected");
```

```
    }
```

```
    public static void main(String args[])
```

```
    {
```

```
        TestGarbage1 s1=new TestGarbage1();
```

```
        TestGarbage1 s2=new TestGarbage1();
```

```
            s1=null;
```

```
            s2=null;
```

```
        System.gc();
```

```
    }
```

```
}
```

object is garbage collected  
object is garbage collected

# Recall

1. What is Garbage Collection?

Finding garbage and reclaiming memory allocated to it.

2. Why Garbage Collection?

Recycled and made available for subsequent new objects.

3. When is the Garbage Collection Process Invoked?

Total memory allocated to a java program exceeds some threshold

4. Is a Running Program affected by garbage Collection?

Yes the program suspends during garbage collection.

# Painting in Java

```
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
public class MouseDrag extends Applet implements MouseMotionListener{

public void init(){
    addMouseMotionListener(this);
    setBackground(Color.red);
}

public void mouseDragged(MouseEvent me){
    Graphics g=getGraphics();
    g.setColor(Color.white);
    g.fillOval(me.getX(),me.getY(),5,5);
}
```



# Summary

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# Reference

1. Herbert Schildt “ The Complete Reference Java 2, 8<sup>th</sup> edition , Tata McGraw Hill, 2011
2. Ralph Bravaco, Shai Simonson, “Java Programming: From the Ground up Tata McGraw Hill, 2012
3. <https://www.javatpoint.com>

*Thank  
you*

A close-up image of a fountain pen nib, showing the gold-colored metal and the black resin body.