```
* servlet life cycle
example index.html:
<html>
   <head>
        <title>Servlet life cycle</title>
   </head>
    <body>
        <form action="ServletLifeCycle" >
            <input type="submit" value="submit">
        </form>
    </body>
</html>
servlet class:
//servlet life cycle
example import
javax.servlet.*;
public class ServletLifeCycle implements Servlet
    int i;
    @Override
    public void init(ServletConfig sc)
        System.out.println("init method called");
        i = 1;
    @Override
    public void service(ServletRequest req,ServletResponse res)
         System.out.println("service method called: "+i);
         i++;
    @Override
    public void destroy()
        System.out.println("destroy method called: "+i);
    }
    @Override
    public ServletConfig getServletConfig() {
        throw new UnsupportedOperationException("Not supported
        yet.");
    }
    @Override
    public String getServletInfo() {
        throw new UnsupportedOperationException("Not supported
        yet.");
    }
}
```

web.xml:

```
QB:1 counts number of
digits index.html
<html>
    <head>
    </head>
    <body>
        <form action="Servlet1" >
            <input type="text" name="name">
            <input type="submit" value="submit">
        </form>
    </body>
</html>
sevlet
import javax.servlet.*;
import
javax.servlet.http.*;
import java.io.*;
public class Servlet1 extends HttpServlet
    int no;
    public void doGet(HttpServletRequest req, HttpServletResponse
       try
           PrintWriter
            out=res.getWriter();
            res.setContentType("text/html")
            ; req.getParameter("name");
            no=Integer.parseInt(req.getParameter("name")
            ); System.out.println(no);
              out.print("number :"+no);
            if(no==0
               out.print("number of digits: 0");
            int c=0;
            while(no>0
            )
            {
                no=no/10;
                C++;
            out.print("number of digits :"+c);
        catch(Exception ex){System.out.println(ex);}
    }
}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
```

```
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app 3 1.xsd">
    <servlet>
        <servlet-name>Servlet1</servlet-name>
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
           30
        </session-timeout>
    </session-config>
</web-app>
```

```
* filter demo
index.html
<html>
    <head>
        <title>cookie</title>
    </head>
    <body>
        <form action="Servlet1" >
            <input type="text" name="name">
            <input type="submit" value="submit">
    </body>
</html>
filter
import javax.servlet.*;
import
javax.servlet.http.*;
import java.io.*;
public class Filter1 implements Filter
    @Override
    public void init(FilterConfig filterConfig) throws
        ServletException { System.out.println("init method of filter
        interface is called");
    }
    @Override
    public void doFilter(ServletRequest req, ServletResponse
res, FilterChain chain) throws IOException, ServletException {
        try
            PrintWriter out=res.getWriter();
            res.setContentType("text/html");
            out.print("filteris invoked
           before"); chain.doFilter(req, res);
            out.print("filteris invoked
           after");
        catch(Exception ex){System.out.println(ex);}
    }
    @Override
    public void destroy() {
        System.out.println("destroy method of filter interface
is called");
}
```

```
import java.io.*;
import javax.servlet.http.*;
public class Servlet1 extends HttpServlet
    String name;
    public void doGet(HttpServletRequest req,HttpServletResponse
    res)
    {
        try
           PrintWriter
            out=res.getWriter();
            res.setContentType("text/html")
           name=req.getParameter("name");
            out.print("welcome"+name);
        catch(Exception ex){System.out.println(ex);}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app 3 1.xsd">
    <servlet>
        <servlet-name>Servlet1</servlet-name>
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
</web-app>
```

```
* cookie example
index.html
<html>
    <head>
        <title>cookie</title>
    </head>
    <body>
        <form action="Servlet1" >
            <input type="text" name="name">
            <input type="submit" value="submit">
    </body>
</html>
servlet class
import javax.servlet.http.*;
import java.io.*;
public class Servlet1 extends HttpServlet
     String name;
     @Override
     public void doGet(HttpServletRequest req, HttpServletResponse
     res)
     {
        try
         {
             name=req.getParameter("name");
             PrintWriter out=res.getWriter();
             Cookie ck=new
            Cookie("uname", name);
             res.addCookie(ck);
             res.setContentType("text/html");
             out.println("welcome "+name);
             out.print("<br />");
             out.print("<a
href='http://localhost:8084/ServletQb/Servlet2' >go</a>");
         catch(Exception ex)
         {System.out.println(ex);}
     }
 }
import javax.servlet.http.*;
import java.io.*;
public class Servlet2 extends HttpServlet
     String name;
     @Override
     public void doGet(HttpServletRequest req, HttpServletResponse
     res)
```

```
{
         try
             PrintWriter
             out=res.getWriter(); Cookie[]
             ck=req.getCookies(); for(Cookie
             c:ck)
             {
                 if(c.getName().equals("uname"))
                    out.print("hello...."+c.getValue()+" out site
under
construction");
             }
         catch(Exception ex)
         {System.out.println(ex);}
     }
 }
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app >
    <servlet>
        <servlet-name>Servlet1</servlet-name>
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet>
        <servlet-name>Servlet2</servlet-name>
        <servlet-class>Servlet2</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <servlet-mapping>
        <servlet-name>Servlet2</servlet-name>
        <url-pattern>/Servlet2</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
</web-app>
```

```
* context config
example index.html
<html>
    <head>
        <title>context config</title>
    </head>
    <body>
        <form action="ContextConfig" >
            <input type="submit" value="submit">
    </body>
</html>
servlet
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class ContextConfig extends HttpServlet
    String
    name;
    String tm;
    @Override
    public void init(ServletConfig sc)
    {
        try
        {
             name=sc.getInitParameter("fname");
        ServletContext sct=sc.getServletContext();
        tm=sct.getAttribute("tm").toString();
        catch(Exception ex){System.out.println(ex);}
    @Override
    public void doGet(HttpServletRequest req, HttpServletResponse
    res)
        try
        {
             PrintWriter
             out=res.getWriter();
             res.setContentType("text/html")
             ; out.println("name:"+name);
out.println("tm:" + tm);
        }
        catch(Exception ex)
            System.out.println(ex);
        }
    }
}
```

```
<web-app >
   <context-param>
       <param-name>tm</param-name>
       <param-value>india</param-value>
   </context-param>
   <servlet>
       <servlet-name>ContextConfig</servlet-name>
       <servlet-class>ContextConfig</servlet-class>
       <init-param>
           <param-name>fname</param-name>
              <param-value>Ms dhoni</param-</pre>
                         value>
       </init-param>
   </servlet>
   <servlet-mapping>
       <servlet-name>ContextConfig</servlet-name>
       <url-pattern>/ContextConfig</url-pattern>
   </servlet-mapping>
</web-app>
```

```
* httpsession example
index.html
<html>
    <head>
        <title>cookie</title>
    </head>
    <body>
        <form action="Servlet1" >
            <input type="text" name="name">
            <input type="submit" value="submit">
    </body>
</html>
servlet files
import
java.io.*;
import javax.servlet.http.*;
import javax.servlet.*;
public class Servlet1 extends HttpServlet
    String name;
    public void doGet(HttpServletRequest req, HttpServletResponse
    {
       try
           PrintWriter
            out=res.getWriter();
            res.setContentType("text/html")
            ; HttpSession
            hs=req.getSession();
            name=req.getParameter("name");
            hs.setAttribute("uname", name);
            out.print("welcome"+name);
            out.print("<a href='Servlet2'>go</a>");
        catch(Exception ex){System.out.println(ex);}
    }
}
import java.io.*;
import javax.servlet.http.*;
import javax.servlet.*;
public class Servlet2 extends HttpServlet
    String name;
    public void doGet(HttpServletRequest req, HttpServletResponse
    res)
    {
       try
        {
            PrintWriter out=res.getWriter();
```

```
res.setContentType("text/html");
           HttpSession
           hs=req.getSession(false);
          name=hs.getAttribute("uname").toString();
          out.print("hello "+name);
        catch(Exception ex){System.out.println(ex);}
    }
}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app >
    <servlet>
        <servlet-name>Servlet1</servlet-name>
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet>
        <servlet-name>Servlet2</servlet-name>
        <servlet-class>Servlet2</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <servlet-mapping>
        <servlet-name>Servlet2</servlet-name>
        <url-pattern>/Servlet2</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
</web-app>
```

```
OB 8 helloworld
index.html
<html>
    <head>
    </head>
    <body>
        <form action="Servlet1" method="post" >
                 <input type="submit"</pre>
                      value="go">
        </form>
    </body>
</html>
servlet
import javax.servlet.*;
import
javax.servlet.http.*;
import java.io.*;
public class Servlet1 extends HttpServlet
{
    int no1;
    int no2;
   public void doPost(HttpServletRequest req, HttpServletResponse
    {
       try
        {
            PrintWriter out=res.getWriter();
            res.setContentType("text/html");
            out.print("<h1>Hello
           world</h1>");
        catch(Exception ex){System.out.println(ex);}
    }
}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app 3 1.xsd">
    <servlet>
        <servlet-name>Servlet1
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
```

```
30
</session-timeout>
</session-
config>
</web-app>
```

```
QB 7 req.get
index.html
<html>
    <head>
    </head>
    <body>
        <form action="Servlet1" method="post" >
                  <input type="submit"</pre>
                      value="go">
        </form>
    </body>
</html>
servlet
import javax.servlet.*;
import
javax.servlet.http.*;
import java.io.*;
import java.util.*;
public class Servlet1 extends HttpServlet
    int no1;
    int no2;
    public void doPost(HttpServletRequest req, HttpServletResponse
    res)
        try
            PrintWriter out=res.getWriter();
            res.setContentType("text/html");
                String userAgent = req.getHeader("User-
                Agent"); String cip=req.getRemoteAddr();
                int cport=req.getRemotePort();
                int sport=req.getServerPort();
                int lport=req.getLocalPort();
                String
                method=req.getMethod();
                String
                qstring=req.getQueryString();
                out.println("browser:
                "+userAgent); out.print("<br />");
                 out.println("client ip: "+cip);
                  out.print("<br />");
                  out.println("client port:
                  "+cport);
                   out.print("<br />");
                   out.println("server port: "+sport);
                    out.print("<br />");
                   out.println("local port: "+lport);
                   out.print("<br />");
out.println("method: "+method);
                    out.print("<br />");
```

```
QB 7 register prin tln(
index.htmle rySt ring
:
"+qs trin g);
```

```
catch(Exception ex){System.out.println(ex);}
    }
}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app 3 1.xsd">
    <servlet>
        <servlet-name>Servlet1</servlet-name>
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
</web-app>
```

```
QB 5 sum of digits
index.html
<html>
    <head>
    </head>
    <body>
        <form action="Servlet1" >
            <input type="text" name="name">
            <input type="submit" value="submit">
        </form>
    </body>
</html>
servlet
import javax.servlet.*;
import
javax.servlet.http.*;
import java.io.*;
public class Servlet1 extends HttpServlet
    int no;
    public void doGet(HttpServletRequest req, HttpServletResponse
    {
        try
            PrintWriter
            out=res.getWriter();
            res.setContentType("text/html")
            ; req.getParameter("name");
            no=Integer.parseInt(req.getParameter("name")
            ); System.out.println(no);
              out.print("number :"+no);
            if(no==0)
                out.print("number of digits: 0");
            int c=0;
            int sum=0;
            while(no>0
            )
                sum+=(no%10);
                no=no/10;
                C++;
            out.print("number of digits :"+c);
            out.print("sum of digits :"+sum);
        }
        catch(Exception ex){System.out.println(ex);}
    }
}
web.xml
```

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app 3 1.xsd">
    <servlet>
       <servlet-name>Servlet1
       <servlet-class>Servlet1</servlet-class>
   </servlet>
    <servlet-mapping>
       <servlet-name>Servlet1</servlet-name>
       <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
       <session-timeout>
           30
       </session-timeout>
    </session-config>
</web-app>
```

```
QB 3 area of circle
index.html
<html>
    <head>
    </head>
    <body>
        -
<form action="Servlet1" method="post" >
           <h1>enter radius: </h1>
                 <input type="submit"</pre>
                      value="go">
        </form>
    </body>
</html>
servlet
public class Servlet1 extends HttpServlet
    double no;
    double area;
    public void doPost(HttpServletRequest req, HttpServletResponse
    {
        try
            PrintWriter out=res.getWriter();
            res.setContentType("text/html");
               no=Double.parseDouble(req.getParameter("num"));
               area=(3.14*no*no);
                   out.println("<h1>area: </h1>: <h1>"+area+"</h1>");
        catch (Exception ex) {System.out.println(ex);}
    }
}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/java
ee http://xmlns.jcp.org/xml/ns/javaee/web-
app 3 1.xsd">
    <servlet>
        <servlet-name>Servlet1</servlet-name>
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
```

```
OB 8 helloworld
index.html
<html>
    <head>
    </head>
    <body>
        <form action="Servlet1" method="post" >
                 <input type="submit"</pre>
                      value="go">
        </form>
    </body>
</html>
servlet
import javax.servlet.*;
import
javax.servlet.http.*;
import java.io.*;
public class Servlet1 extends HttpServlet
{
    int no1;
    int no2;
   public void doPost(HttpServletRequest req, HttpServletResponse
    {
       try
        {
            PrintWriter out=res.getWriter();
            res.setContentType("text/html");
            out.print("<h1>Hello
           world</h1>");
        catch(Exception ex){System.out.println(ex);}
    }
}
web.xml
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1"</pre>
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
http://xmlns.jcp.org/xml/ns/javaee/web-app 3 1.xsd">
    <servlet>
        <servlet-name>Servlet1
        <servlet-class>Servlet1</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>Servlet1</servlet-name>
        <url-pattern>/Servlet1</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
```

```
30
</session-timeout>
</session-
config>
</web-app>
```