

Overview of Web App Development Tools*

**Most of the contents of this lecture is from Prof. Rodolfo Duldulao Jr., previous instructor at ICS, UPLB.*

Objectives

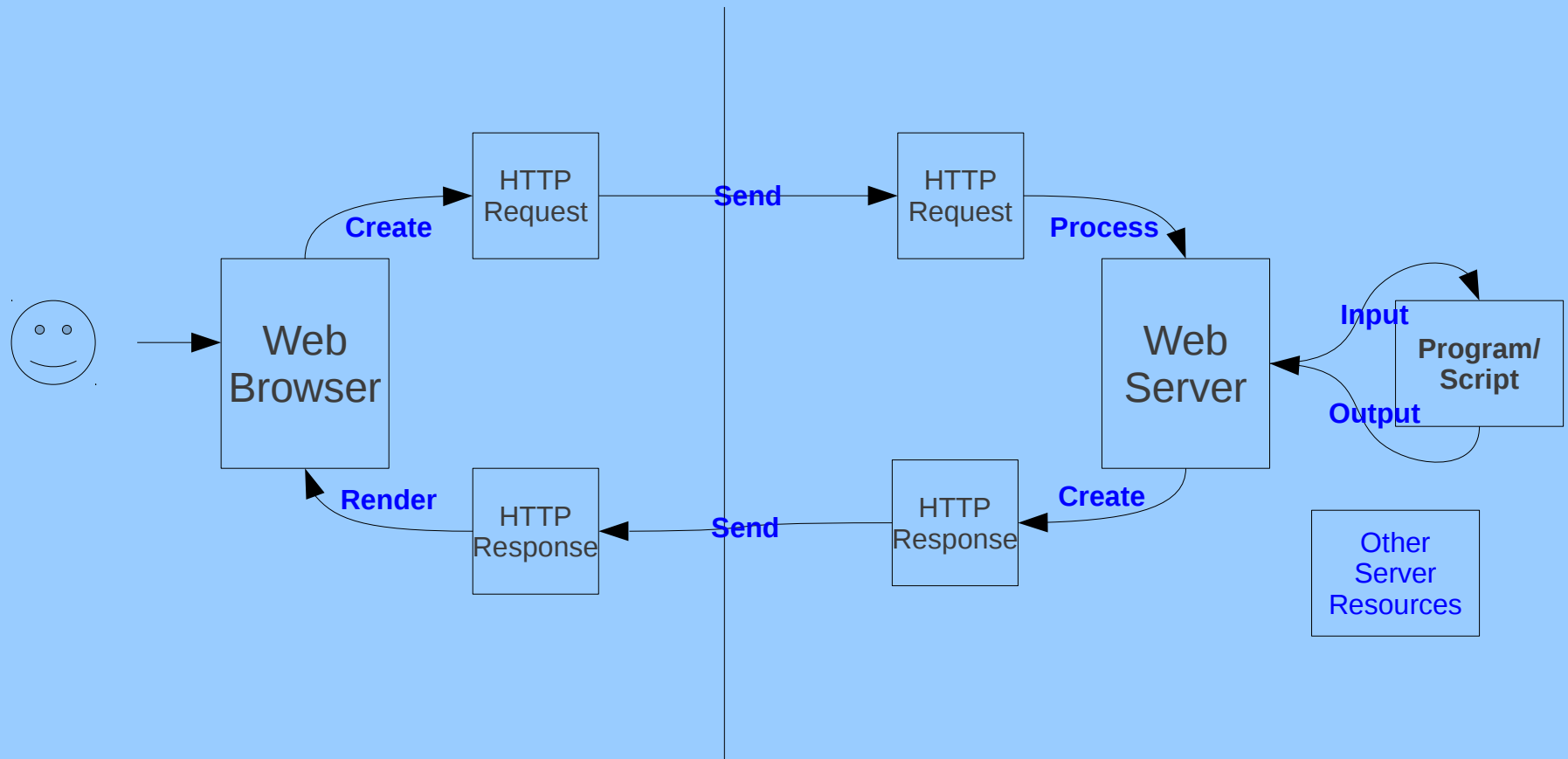
At the end of this session, you should be able to:

- Discuss the web programming environment
- Define CGI
- Identify some popular CGI languages
- Define Content Embedded Language
- Identify some Content Embedded Languages

Introduction: Environment

- Server Side programming:
 - Business logic and data reside on servers.
 - The web browser handles communication with servers.
- Client Side programming
 - User interface and limited/minimal business logic.

Introduction: Environment



Introduction: Environment

- The HTTP Request is the source of input for web programs/scripts.
 - HTTP Header details (i.e. what browser/OS/address the request came from, request URL)
 - Includes submitted form data

Introduction: CGI

- CGI
 - a standard method used to generate dynamic content on web pages and web applications.
- CGI Scripts/Programs
 - Web servers such as Apache Web Server can be configured to interpret a URL that it serves as a reference to a CGI script.
- CGI scripts/programs output dynamic web content that may be included in an HTTP response generated by the web server.

Popular CGI Languages

- Perl
 - means **Practical Extraction and Report Language**
- Java
- Python

CGI Environment Vars

`DOCUMENT_ROOT`, `HTTP_COOKIE`, `HTTP_HOST`, `HTTP_REFERER`,
`HTTP_USER_AGENT`, `HTTPS`, `PATH`, `QUERY_STRING`, `REMOTE_ADDR`,
`REMOTE_HOST`, `REMOTE_PORT`, `REMOTE_USER`, `REQUEST_METHOD`,
`REQUEST_URI`, `SCRIPT_FILENAME`, `SCRIPT_NAME`, `SERVER_ADMIN`,
`SERVER_NAME`, `SERVER_PORT`, `SERVER_SOFTWARE`

- These variables/values are passed to web programs/scripts as parameters.

CGI Perl Example

```
#!/usr/bin/perl -wT
use CGI qw(:standard);
use CGI::Carp qw(warningsToBrowser fatalToBrowser);
use strict;

print header;
print start_html("Referring Page");
print "Welcome, I see you've just come from
$ENV{HTTP_REFERER}!<p>\n";

print end_html;
```

Java Servlet

- Java based web program.
- Requires A Servlet Container (Java-based server, i.e. Tomcat, Glassfish)

Java Servlet

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class SomeServlet extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        PrintWriter out = response.getWriter();
        out.print("<b>Hello World!</b>");
        // Use "out" to send content to browser
    }
}
```

Content(HTML) Embedded Languages

- Web Programming made “Easier”
- Web page with embedded code.
- Popular languages:
 - PHP, JSP, ASP, etc.
- Dynamic content output.
 - Used to customize HTML/content for users.

Content Embedded Languages Overview

```
<html>
<head>
<title>Web Program</title>
<body>
<h1>WoooooooooW</h1>
My name is
```

```
<% code_to_get_data_here %>
```

```
</body>
</html>
```

Template text

Embedded Code

PHP

- Stands for **PHP: Hypertext Preprocessor** (recursive meaning)
- Open source, free, widely used and very popular.
 - Some widely used social networking sites, content management sites use PHP.
- Easy to configure on popular web servers (e.g. Apache, Microsoft IIS)

PHP Example

```
<html>
```

```
<body>
```

```
<form action="" method="post">
```

```
Name: <input type="text" name="fname" />
```

```
<input type="submit" />
```

```
</form>
```

```
Welcome <?php echo $_POST["fname"]; ?>.
```

```
</body>
```

```
</html>
```

JSP

- Java Server Pages
- Requires Servlet Container
- Built over Java Servlets
- JSP pages are converted by the Servlet container into servlets.

JSP Example:

```
<HTML>
```

```
<BODY>
```

```
Hello! The time is now <%= new java.util.Date() %>
```

```
<% //The above statement can also be
```

```
    out.print("Hello! The time now is " + new java.util.Date());
```

```
%>
```

```
</BODY>
```

```
</HTML>
```

ASP

- Active Server Pages
 - There's also ASP.NET
- Runs on Microsoft based systems
- ASP can use VBScript or Javascript syntax via `<@ language="...">` directive.

ASP Example

```
<html>
```

```
<body>
```

```
<%
```

```
response.write("My first ASP script!")
```

```
%>
```

```
</body>
```

```
</html>
```

JSP/JSTL

- JSTL is JSP Standard Tag Library
- Imagine your usual “if () { }”s and “for () { }”s but all in tag form.
- JSP code embedding is “dirty” for some developers.

JSP/JSTL

```
<%@ page language="java" contentType="text/html; charset=US-ASCII" pageEncoding="US-ASCII"%>
```

```
<%@taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
```

```
<html>
```

```
<head>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=US-ASCII">
```

```
<title>iteration with c:forEach loop</title>
```

```
</head>
```

```
<body>
```

```
<h2>iteration with c:forEach loop</h2>
```

```
a:
```

```
<c:forEach var="i" items="{a}">
```

```
  ${i}
```

```
</c:forEach><br />
```

```
</body>
```

```
</html>
```

Apache SSI

- Server Side Includes
- Uses directives that are embedded in HTML pages and evaluated by the server.

Apache SSI Example

```
<html>
```

```
<head>
```

```
<title>SSI Example</title>
```

```
</head>
```

```
<body>
```

```
Date today is <!--#echo var="DATE_LOCAL"-->
```

```
</body>
```

```
</html>
```

Identifying Web Programs

- PHP scripts have .php extensions
- JSP – *.jsp or *.jspx
- ASP - *.asp
- SSI - .shtml
(or whatever is configured with the AWS)

CGI Environment Vars

**DOCUMENT_ROOT, HTTP_COOKIE, HTTP_HOST,
HTTP_REFERER, HTTP_USER_AGENT, HTTPS, PATH,
QUERY_STRING, REMOTE_ADDR, REMOTE_HOST,
REMOTE_PORT, REMOTE_USER, REQUEST_METHOD,
REQUEST_URI, SCRIPT_FILENAME, SCRIPT_NAME,
SERVER_ADMIN, SERVER_NAME, SERVER_PORT,
SERVER_SOFTWARE**

- These variables/values are passed to web programs/scripts as parameters.

Quiz

- What does CGI stand for (in web programming)?
- CGI Environment Variable