

Javada web dastur yaratish

Reja:

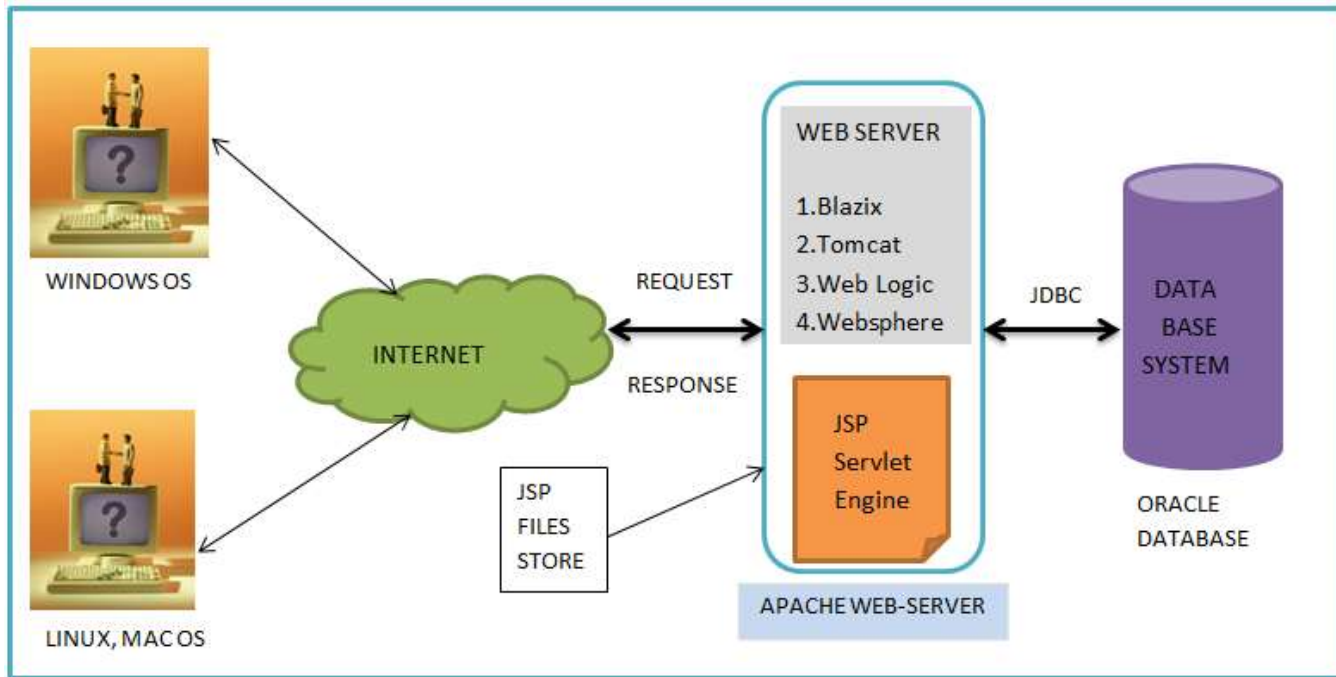
1. Web dastur tushunchasi
2. Http protocoli
3. Tomcat servlet containeri
4. Java Servlet
5. IntelliJ IDEA yordamida Web dastur yaratish
6. Sign in va Sign up jarayonlarini amalga oshiruvchi web dastur yaratish.

Web application



What is a Web Server?

- Web server bu web application (website) ishga tushurilgan komputerdir. Unda so'raglan tamonga web sahifalarni uzatuvchi dastur o'rnatilgan. Uning asosiy vazifasi bajarilayotgan jarayonlarni saqlash va web sahifalarni yetkazib berish. Ushbu amallarning barchasi HTTP protokol dan foydalangan holda amalga oshiriladi.
- Web server ma'lumotlarni jo'natish uchun HTTP protokol dan foydalanadi. Oddiy holatda bu foydalanuvchi browser(client dasturi) address maydoniga URL kiritadi va enter ni bosish orqali so'rov(request) yuboradi. Server esa ushbu URL ga mos web sahifa(response)ni clientga jo'natadi. Ushbu amallar barchasi request va response shakllardan iborat HTTP protokolida amalga oshadi.

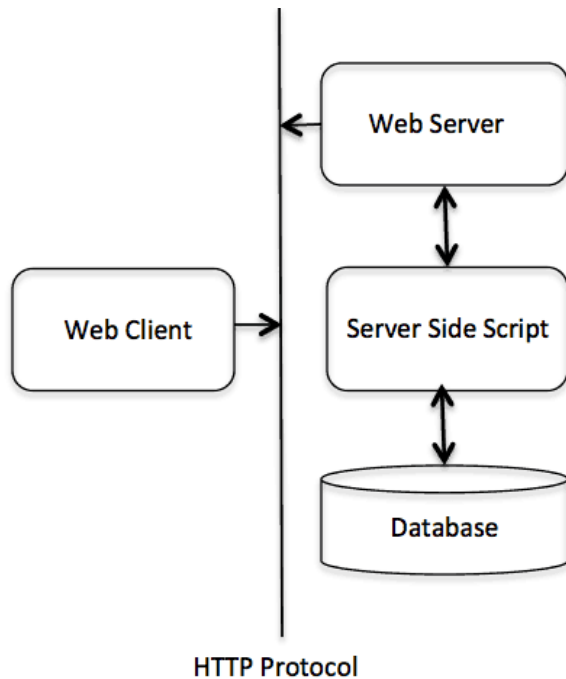


HTTP protocol

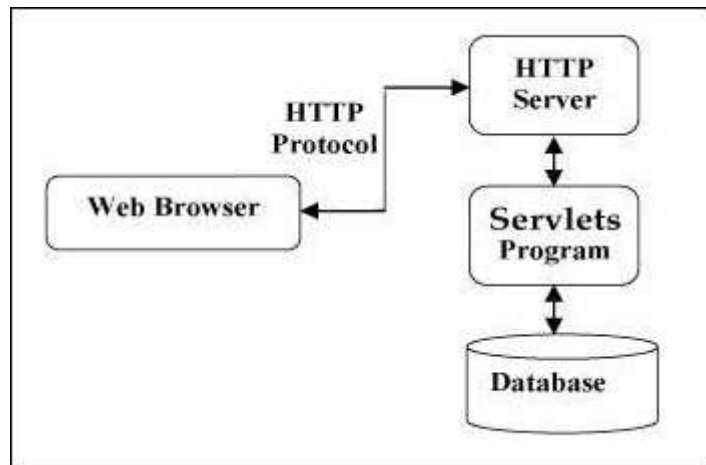
HTTP bu - client/server arxitekturasida ishlashga mo'ljallangan request/response protokol lariga asoslangan protokol hisoblanadi. Bunda client sifatida web browserlar, robotlar va h.k., server sifatida Web server lar bo'ladi.

<https://developer.mozilla.org/en-US/docs/Web/HTTP>

HTTP protocol

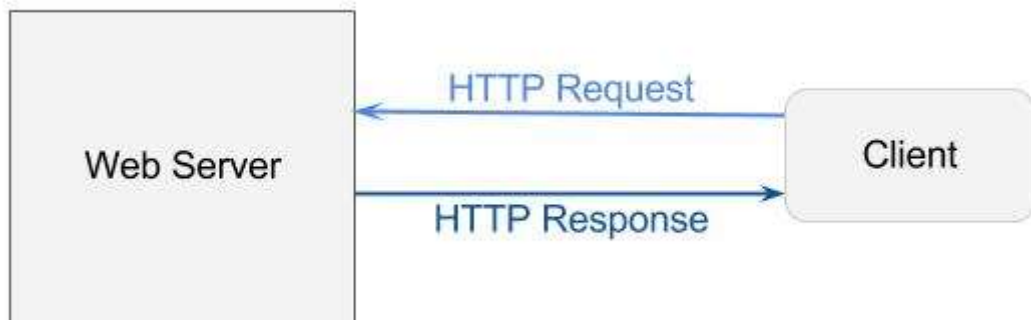


HTTP protocol



HTTP Messages

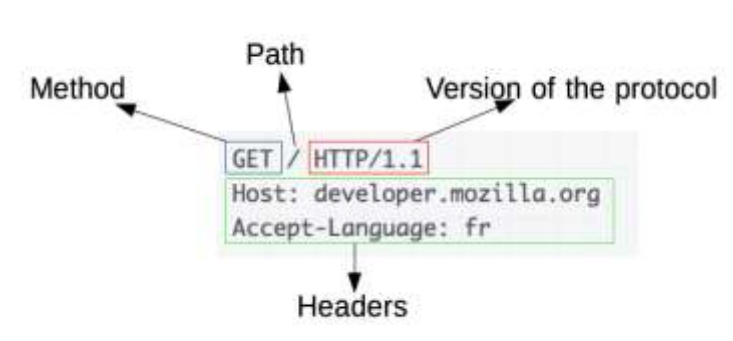
- HTTP xabarining har biri o'z shakliga ega bo'lgan 2 xil: request va response turi mavjud.
- HTTP client server tomonga request (so'rov) jo'natadi. Request - jo'natuvchi haqidagi ma'lumotlar va so'rov haqidagi ma'lumotlardan iborat bo'ladi.
- HTTP server requestga mos javob(response)ni shakillantirib clientga jo'natadi.



Request

HTTP Client web serverga quyidagi qismlardan iborat HTTP Request jo'natadi:

1. Request line;
2. Headerlar(bir nechta yoki umuman bo'lmasligi mumkin);
3. Empty line
4. Message-body(bo'lmasligi ham mumkin);



```
GET /index.html HTTP/1.1
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
Host: www.pdp.uz
Accept-Language: en-us
Accept-Encoding: gzip, deflate
Connection: Keep-Alive
```

```
POST /cabinet HTTP/1.1
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
Host: www.pdp.uz
Content-Type: application/x-www-form-urlencoded
Content-Length: length
Accept-Language: en-us
Accept-Encoding: gzip, deflate

Connection: Keep-Alive licenseID=string&content=string&/paramsXML=string
```

Request Methods

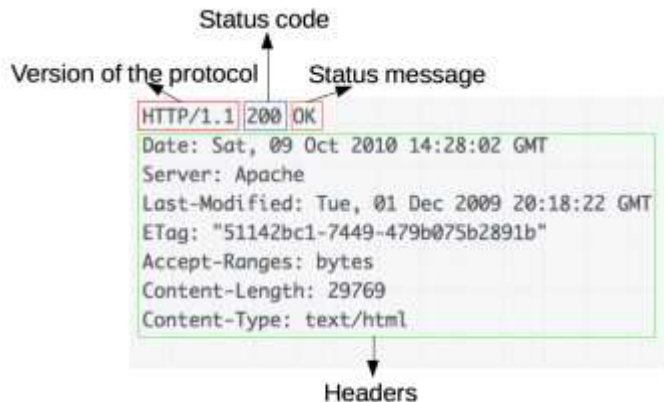
1. POST
2. GET
3. PUT
4. DELETE
5. HEAD
6. CONNECT
7. OPTIONS
8. TRACE

https://www.tutorialspoint.com/http/http_methods.htm

Response

Web servering HTTP Client ga jo'natadigan response quyidagi qismlardan iborat bo'lishi mumkin:

1. Status line;
2. Headerlar(bir nechta yoki umuman bo'lmasligi mumkin);
3. Empty line
4. Message-body(bo'lmasligi ham mumkin);



```
HTTP/1.1 200 OK
Date: Mon, 27 Jul 2009 12:28:53 GMT
Server: Apache/2.2.14 (Win32)
Last-Modified: Wed, 22 Jul 2009 19:15:56 GMT
Content-Length: 88
Content-Type: text/html
Connection: Closed
```

```
<html>
<body>
<h1>Hello, World!</h1>
</body>
</html>
```

```
HTTP/1.1 404 Not Found
Date: Sun, 18 Oct 2012 10:36:20 GMT
Server: Apache/2.2.14 (Win32)
Content-Length: 230
Connection: Closed
Content-Type: text/html; charset=iso-8859-1
```

```
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html>
<head>
  <title>404 Not Found</title>
</head>
<body>
  <h1>Not Found</h1>
  <p>The requested URL /t.html was not found on this server.</p>
</body>
</html>
```



```
HTTP/1.1 400 Bad Request
Date: Sun, 18 Oct 2012 10:36:20 GMT
Server: Apache/2.2.14 (Win32)
Content-Length: 230
Content-Type: text/html; charset=iso-8859-1
Connection: Closed
```

```
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html>
<head>
  <title>400 Bad Request</title>
</head>
<body>
  <h1>Bad Request</h1>
  <p>Your browser sent a request that this server could not understand.</p>
  <p>The request line contained invalid characters following the protocol string.</p>
</body>
</html>
```

Status Codes

T.R.	Code va izoh
1	1xx: Informational So'rov yetib borganligi va ishlov berish jarayoni davom etayotganligini bildiradi.
2	2xx: Success So'rov yetib kelganligi, tushunarli va qabul qilinganligini bildiradi.
3	3xx: Redirection So'rov boshqa yo'lga yo'naltirilganligini bildiradi.
4	4xx: Client Error So'rov noto'g'ri tuzilganligi yoki amalga oshmasligini bildiradi.
5	5xx: Server Error Server ushbu so'rovni amalga oshira olmasligini bildiradi.

https://www.tutorialspoint.com/http/http_status_codes.htm

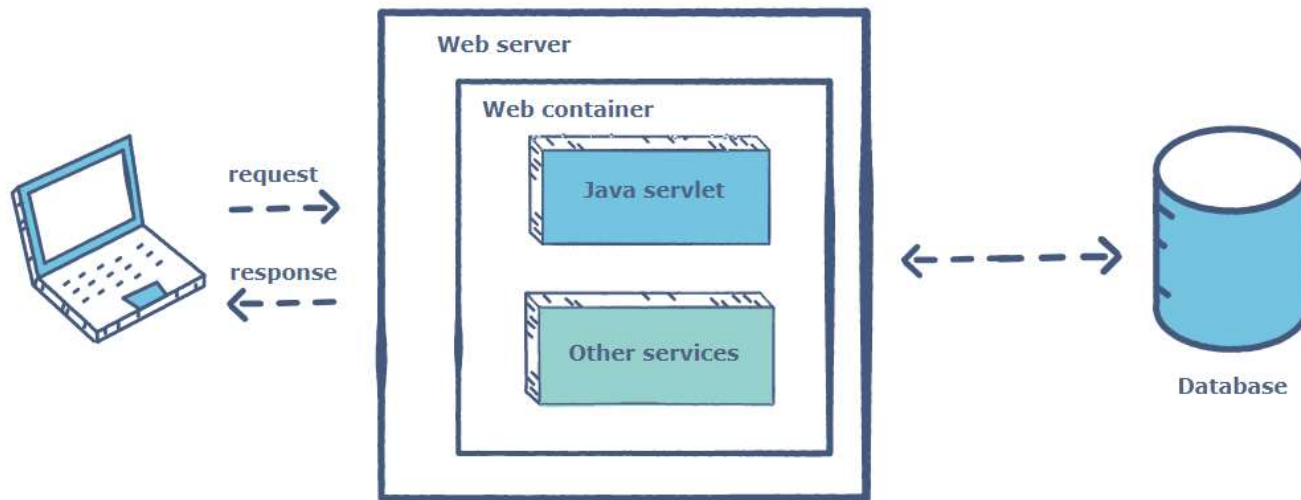
Headers

HTTP Client web serverga quyidagi qismlardan iborat HTTP Request jo'natadi:

1. **General-header:** request va response ikkalasiga ham tegishli;
2. **Client Request-header:** faqat requestga tegishli;
3. **Server Response-header:** faqat responsega tegishli;
4. **Entity-header:** message-body haqidagi meta ma'lumotlardan iborat bo'ladi.

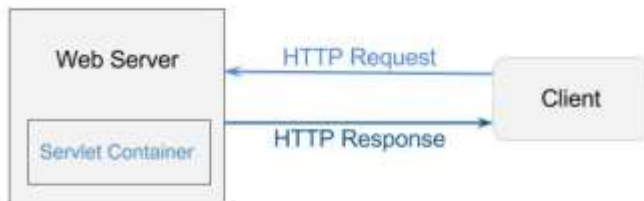
https://www.tutorialspoint.com/http/http_header_fields.htm

Tomcat servlet container

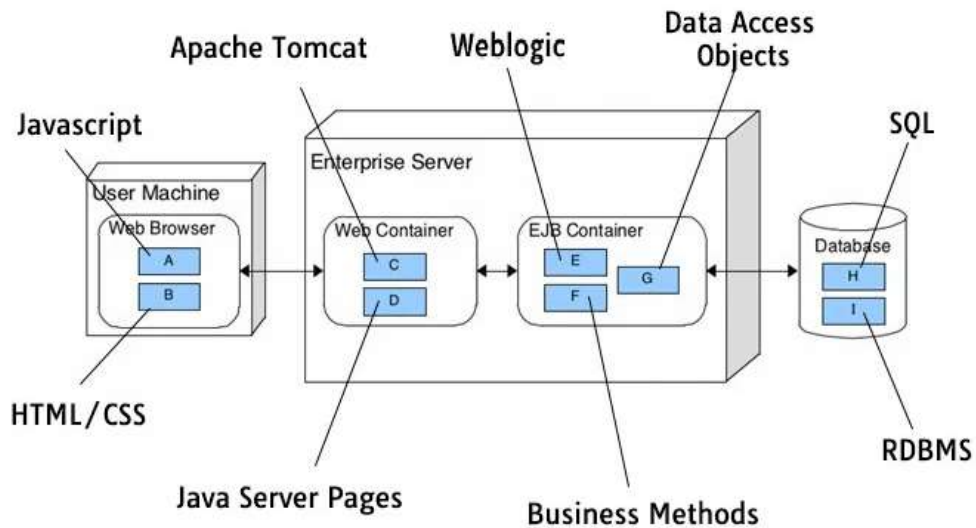


Web Container Web Server ning tarkibiy qismi bo'lib Servlet Container va Servlet Engine lardan tashkil topadi.

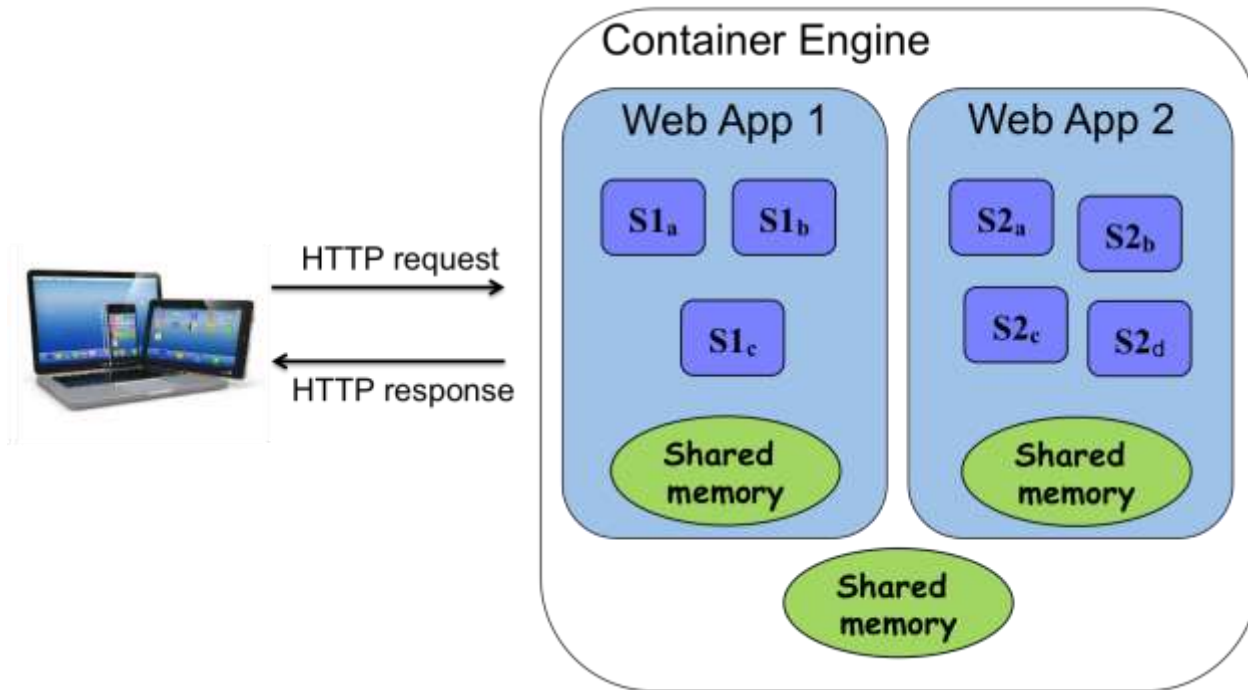
Tomcat servlet container



Tomcat servlet container



Tomcat servlet container



What is a Servlet?

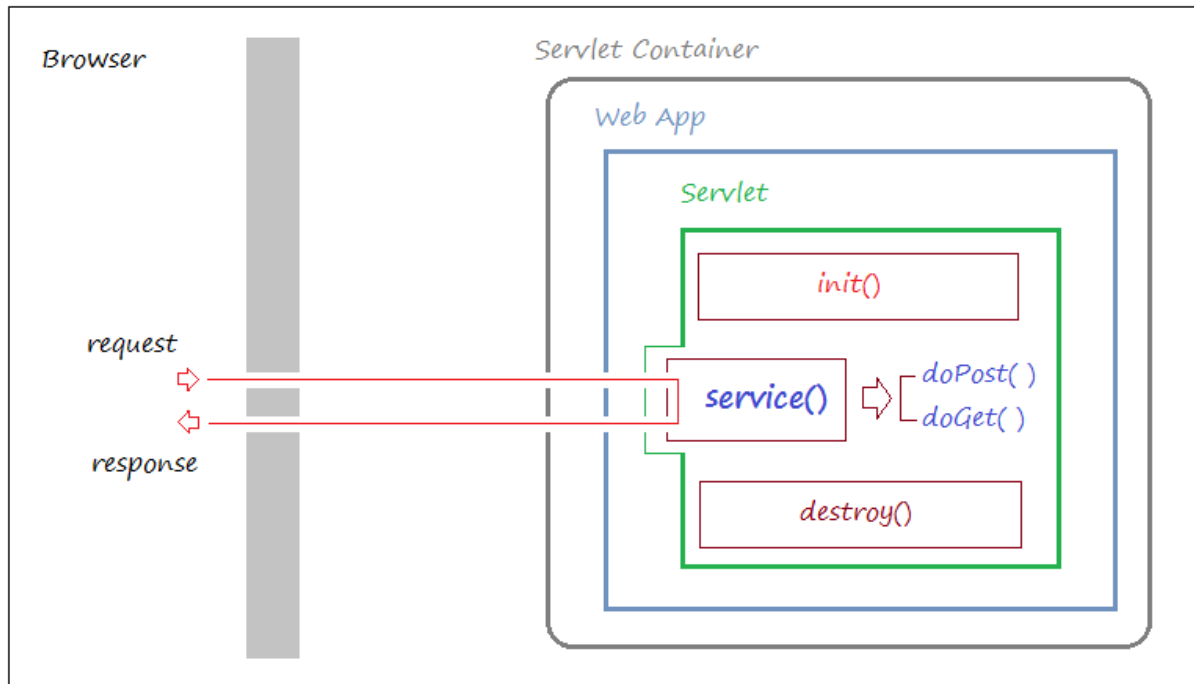
Servlet bu javax.servlet package iga tegishli interface. Unda servletni life cycle (yashash davri)ni belgilovchi 3 ta – init(), service() va destroy() methodlar e'lon qilingan.

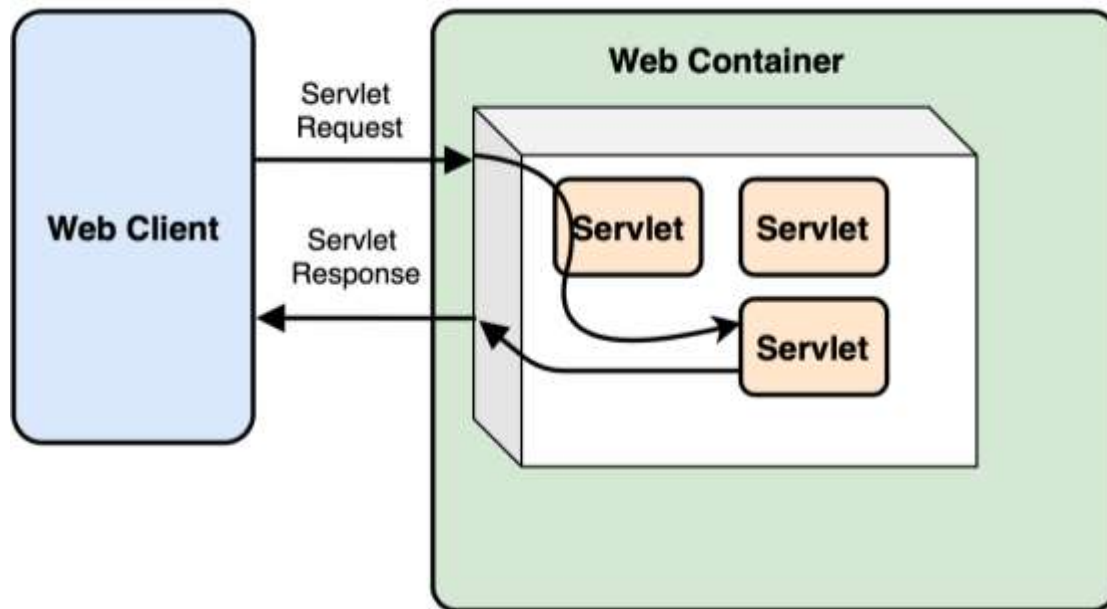
1. init() methodi servlet objectini yaratish va xotiraga yuklash uchun unga dastlabki murojat bo'lganda web container tomonidan 1 marta chaqiriladi.

2. service() methodi web container tomonidan har bir request uchun alohida chaqiriladi

3. destroy() methodi servlet objectini xotiradan o'chirish uchun oxirda chaqiriladi.

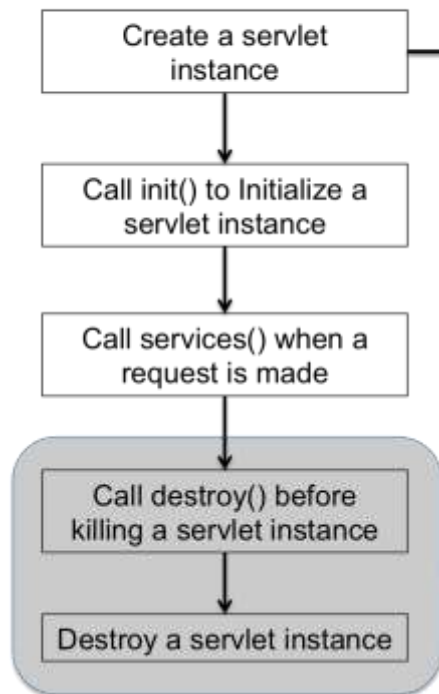
Servlets Architecture

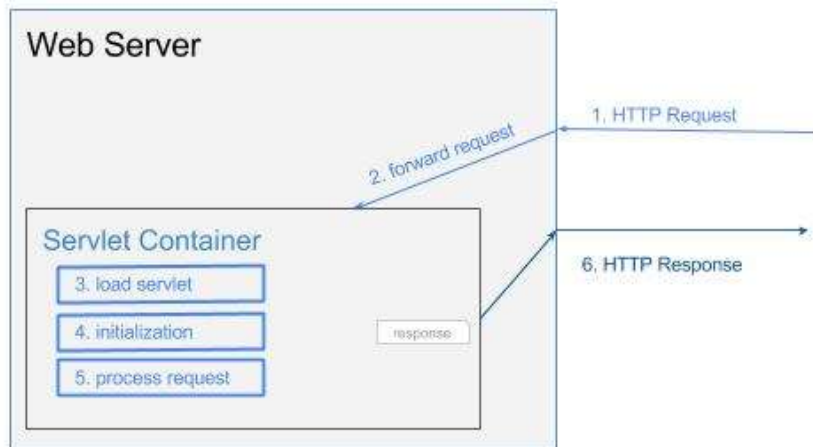


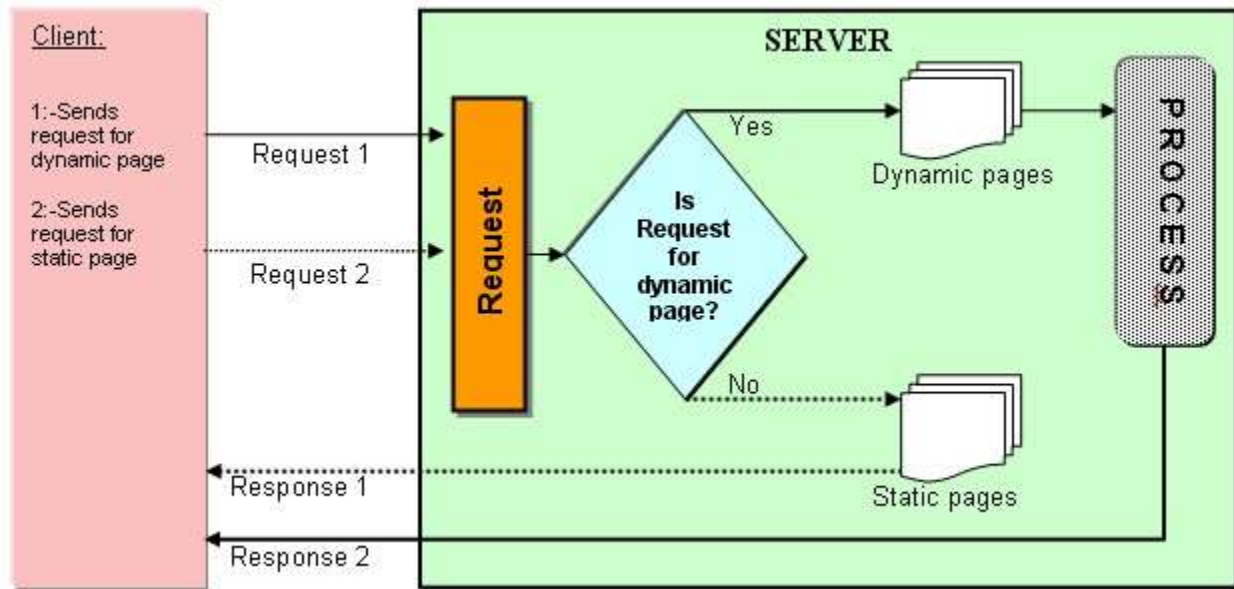


How Servlet container and web server process a request?

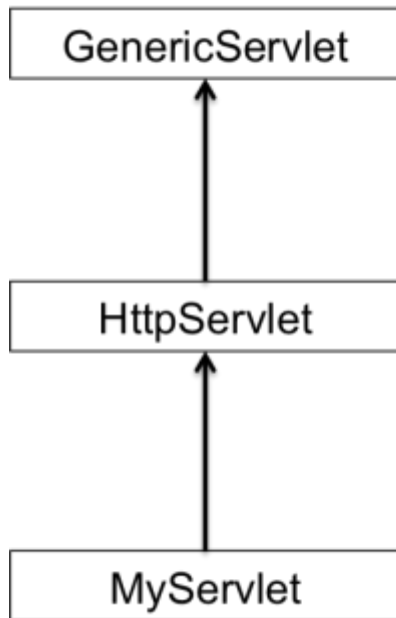
- Web server HTTP request ni qabul qiladi
- Web server request ni servlet container ga yo'naltiradi
- Request ni path iga biriktirilgan servlet yuklanadi yoki unday servlet yo'q bo'lsa dynamic tarzda shakillantiiriladi.
- Container servletni inisializasiya qilish uchun init() methodini chaqiradi.
- Container request ma'lumotlarini o'qish va unga response ni shakillantirish uchun servletni service() method ini chaqiradi.
- Web server dynamic tarzda shakillantiirilgan response ni return qiladi







Servlet



Abstract class (not all methods are implemented)
-- does not implement *service()*

All methods are implemented
-- extends *GenericServlet* with
service (HttpServletRequest req, HttpServletResponse res)
throws ServletException, IOException

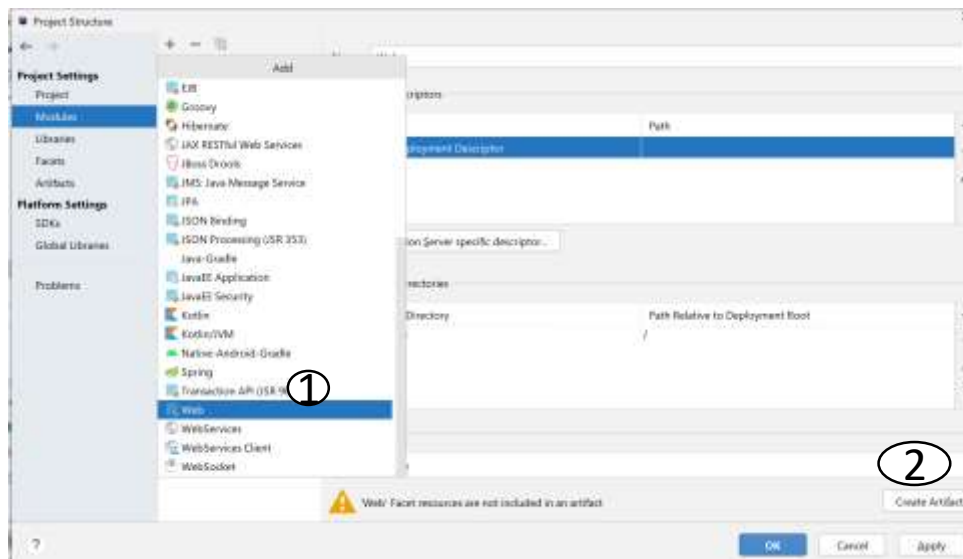
Servlet written by a programmer

Intellij IDEA yordamida web dastur yaratish

- 1) Maven project yaratish
- 2) Web modul qo'shish;
- 3) Tomcat application serverni qo'shish;
- 4) Servlet yaratish;

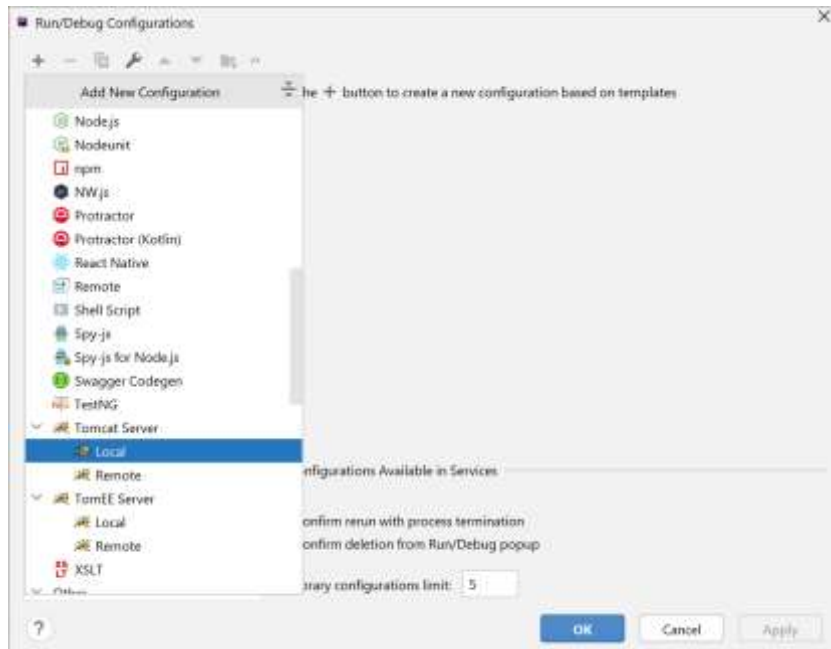
Web modul qo'shish;

- 1) File->Project structure->Modules->Web
- 2) Create Artifact



Tomcat application serverni qo'shish

Run->Edit Configuration->Tomcat Server



Servlet yaratish

- 1) Java Class yaratish
- 2) Java Class uchun servlet yaratish
- 3) Servlet path ini ko'rsatish(Servlet-mapping)

E'tiboringiz uchun raxmat