URL class in Java with Examples

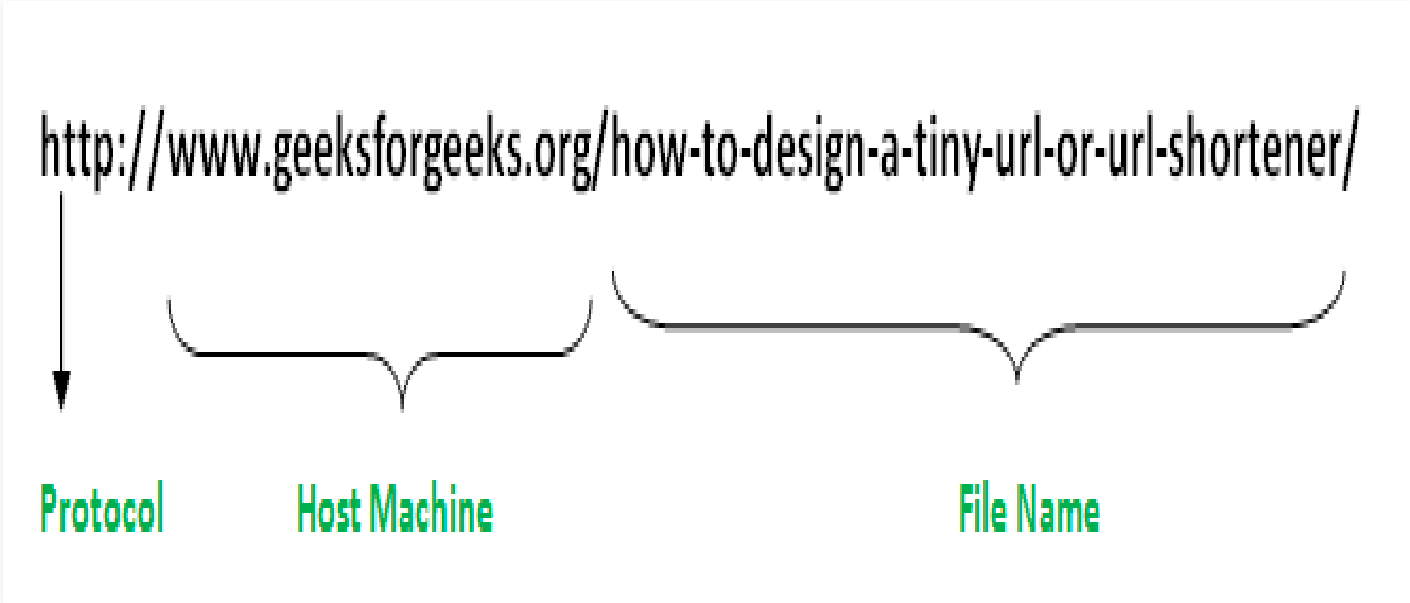
Difficulty Level : Easy Last Updated : 22 Jun, 2021

The URL class is the gateway to any of the resource available on the internet. A Class URL represents a Uniform Resource Locator, which is a pointer to a “resource” on the World Wide Web. A resource can point to a simple file or directory, or it can refer to a more complicated object, such as a query to a database or to a search engine

What is a URL?

As many of you must be knowing that Uniform Resource Locator-URL is a string of text that identifies all the resources on Internet, telling us the address of the resource, how to communicate with it and retrieve something from it.

A Simple URL looks like:



Components of a URL:-

A URL can have many forms. The most general however follows three-components system-

1. **Protocol:** HTTP is the protocol here
2. **Hostname:** Name of the machine on which the resource lives.
3. **File Name:** The path name to the file on the machine.
4. **Port Number:** Port number to which to connect (typically optional).

Some constructors for URL class:-

1. **URL(String address) throws MalformedURLException:** It creates a URL object from the specified String.
2. **URL(String protocol, String host, String file):** Creates a URL object from the specified protocol, host, and file name.
3. **URL(String protocol, String host, int port, String file):** Creates a URL object from protocol, host, port and file name.
4. **URL(URL context, String spec):** Creates a URL object by parsing the given spec in the given context.

5. **URL(String protocol, String host, int port, String file, URLStreamHandler handler):-** Creates a URL object from the specified protocol, host, port number, file, and handler.
6. **URL(URL context, String spec, URLStreamHandler handler):-** Creates a URL by parsing the given spec with the specified handler within a specified context.

Sample Program:

```
// Java program to demonstrate working of URL
import java.net.MalformedURLException;
import java.net.URL;

public class URLclass1
{
    public static void main(String[] args)
                throws MalformedURLException
    {

        // creates a URL with string representation.
        URL url1 =
        new URL("https://www.google.co.in/?gfe_rd=cr&ei=ptYq" +
                "WK26I4fT8gfth6CACg#q=geeks+for+geeks+java");

        // creates a URL with a protocol,hostname,and path
        URL url2 = new URL("http", "www.geeksforgeeks.org",
                           "/jvm-works-jvm-architecture/");

        URL url3 = new URL("https://www.google.co.in/search?"+
                           "q=gnu&rlz=1C1CHZL_enIN71" +
                           "4IN715&oq=gnu&aqs=chrome..69i57j6" +
                           "9i60l5.653j0j7&sourceid=chrome&ie=UTF" +
                           "-8#q=geeks+for+geeks+java");

        // print the string representation of the URL.
        System.out.println(url1.toString());
```

```
            System.out.println(url2.toString());
            System.out.println();
            System.out.println("Different components of the URL3-");

            // retrieve the protocol for the URL
            System.out.println("Protocol:- " + url3.getProtocol());

            // retrieve the hostname of the url
            System.out.println("Hostname:- " + url3.getHost());

            // retrieve the default port
            System.out.println("Default port:- " +
                                        url3.getDefaultPort());

            // retrieve the query part of URL
            System.out.println("Query:- " + url3.getQuery());

            // retrieve the path of URL
            System.out.println("Path:- " + url3.getPath());

            // retrieve the file name
            System.out.println("File:- " + url3.getFile());

            // retrieve the reference
            System.out.println("Reference:- " + url3.getRef());
        }
    }
```

Output:

```
https://www.google.co.in/?gfe_rd=cr&ei=ptYqWK26I4fT8gfth6CACg#q=geeks+for+gee
https://www.geeksforgeeks.org/jvm-works-jvm-architecture/

Different components of the URL3-
Protocol:- https
Hostname:- www.google.co.in
Default port:- 443
Query:- q=gnu&rlz=1C1CHZL_enIN714IN715&oq=gnu&aqs=chrome..69i57j69i60l5.653j0
Path:- /search
File:- /search?q=gnu&rlz=1C1CHZL_enIN714IN715&oq=gnu&aqs=chrome..69i57j69i60l
Reference:- q=geeks+for+geeks+java
```

Explanation of some methods used in the above program is as follows:-

1. **public String toString():** As in any class, toString() returns the string representation of the given URL object.
2. **public String getAuthority():** returns the authority part of URL or null if empty.
3. **public String getPath():** returns the path of the URL, or null if empty.
4. **public String getQuery():** returns the query part of URL. Query is the part after the '?' in the URL. Whenever logic is used to display the result, there would be a query field in URL. It is similar to querying a database.
5. **public String getHost():** return the hostname of the URL in IPv6 format.
6. **public String getFile():** returns the file name.
7. **public String getRef():** Returns the reference of the URL object. Usually, the reference is the part marked by a '#' in the URL. You can see the working example by querying anything on Google and seeing the part after '#'.
8. **public int getPort():** returns the port associated with the protocol specified by the URL.
9. **public int getDefaultPort:** returns the default port used.
10. **public String getProtocol():** returns the protocol used by the URL.

References

http://docs.oracle.com/javase/7/docs/api/java/net/URL.html#getAuthority()

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