**Common Gateway Interface (CGI)**

The Common Gateway Interface(CGI) is the condition for transmitting information or data between a web server in the World Wide Web and a program of the Common Gateway Interface that determines a paradigm information variable. The program transfers languages like C, Perl, Java, and Visual Basic. CGI programs work in many HTML web pages with forms of data and can be written in any programming language. It is usually executed on a computer to generate web pages dynamically.

In all operating systems, the interface is executed in system variables. For Invocation, the client indicates the URI name of the program to be invoked and the program should be implemented in a specific location at the web server. Lastly the execution, the server distinguishes from the URI by which the request resource could be deployed. Requirements for the execution is that is must meet the set permissions for the web server in allowing the program execution and the extensions for the executable files in the server should be indicated. In addition, for execution, the web server interprets the specification that the client has sent to be able to commence the CGI variables. Then the program from the server is executed in a new method that prints the feedback on the output and builds the feedback from the content that has been eliminated to the output and is sent to the client.

**CGI development**

The client parameters that are to be developed in CGI with Handling request parameters are: HTTP GET method and HTTP POST method. The HTTP GET method are added to the web page URL and the HTTP POST method parameters are instead inserted as an entity for the body of the request HTTP. This requires the use of HTML forms, so that the users could input data in a body of the request.

Since the program can be written in any programming language, then for a compiled programming language the source code should also be compiled normally. As for interpreted scripting language, the files are also deployed. CGI variables comprises of server, request, and headers.

The server variables use a naming convention of SERVER\_SOFTWARE that is to be used for the renaming of name and the change of version in the server software. While SERVER\_NAME allows the hostname or IP of the web server, and the GATEWAY\_INTERFACE is a supported version for the CGI. For the request variables, the variables use the name: SERVER\_PROTOCOL to transfer the protocol name and version, while the SERVER\_PORT links the port to which request it is sent, the REQUEST\_METHOD requests method for HTTP, PATH\_INFO authorizes additional path information, SCRIPT\_NAME invokes the URL with script, and QUERY\_STRING is the query string. Last in the list would be - Environment variables for the headers. The environment is a storage for HTTP headers that contains request. The following are naming conventions used for environment variable headers: HTTP\_USER\_AGENT – it is used for request of browser, HTTP\_ACCEPT\_ENCODING – the client receives the encryption type, HTTP\_ACCEPT\_CHARSET – the client receives a charset, HTTP\_ACCEPT\_LANGUAGE – the client receives the language.

**The Problems with CGI**

The problems with CGI is that whenever a server receives a request, the server creates a new method in order to execute the CGI program that requires a lot of time and a server with substantial resources. The CGI program could not be connected back to the web server. Moreover, the system of the CGI program has ended when the program is finished. This emphasizes the main memory protection of the user’s session. Another problem to be encountered is that a user for example would expose their physical path to an executable program in the web, then it would be compromised.

Reference:

https://www.slideshare.net/fraterna/common-gateway-interface-17405944