**Design/Operation of Modern Web Browsers**

Apart from an early age browser which is a single process browser modern web browser is multiprocess browser. Its architecture has two significant changes the first is separating the renderer process from the browser process and the second one is pacing renderer process in sandboxes.

It also improves the performance for example if JavaScript issues like infinite loop block the page from rendering, this issue does not block page rendering in other tab. which shows that each tab has its own rendering ability.

**How the JavaScript engine optimizes execution of JavaScript code in a web application**

JavaScript engine is a computer program that executes JavaScript code. This process is optimized. Since JavaScript is higher level language it needs to be translated to a lower-level language to be understandable by the machine.so the implementation of JavaScript engine is key to the interpretation.

The JavaScript engine pipeline shows the step how this process goes through. After fetching of script via script tag and loading it as byte stream this byte stream it will be decoded into token and sent to parser. Parser creates node and with the node it creates an Abstract syntax tree which interpreter used to get the byte code. And the profiler(JiT) watch code to optimize it. Based on the hit of the statements it will mark the execution sent to compiled and stored. And the compiler starts working ahead of time and translation of code will be done. And optimized code will run faster, for example by using inlining v8 which is the JavaScript engine will remove some steps and improve efficiency.