Student name : 1. Salma Dweikat

2. Naheel Sabbah

HW2 : Bazar.com: A Multi-tier Online Book Store

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WE build the design by creating 3 different VMs on Oracle VM VirtualBox. The codes was written using Java on eclipse IDE. We used Spark dependencies for apache maven project in the pom.xml file for each server alongside other dependencies that was needed for the whole design to be done as **org.apache.poi** for managing excel (.xlsx) files which we have considered to be the DataBase that was Shared between the catalog and order server and our own computer.

the DataBase were two excel files one named DOSHW2 for the original servers and the other DOS-HW for the clone servers.

The process follows one sequence of events where a user starts by writing a request as HTTP request and as we were asked to use a VMs the IP address is configuration on the private network from a DHCP server integrated into VirtualBox which will differ from the host address and to know the IP for the VM, we used *ifconfig* command line for the five VMs. Next, once the user hit enter, the HTTP request will be caught by the front-end server which will filter the requests and route them to the right back-end server. In the back-end servers, each server can access the database and do the request as it was programmed for it to do.

The front-end server is the last server that we run once we want to run the whole system because we want to make sure that the ports numbers it has are the right ones so we assign the backend servers ports, run them then run the front end.

The code of the front-end server contains a Round-Robin algorithm for load balancing and in-memory-cache integrated.

The back-end server (catalog) which is responsible for lookup and search requests has a class for handling the management of the database (excel files) where it only reads as requested from the database.

The back-end server (order) is responsible for one request which is the buy request where we will write on the database (modify it). It’s also where we keep the consistency between the two databases as explained in the code.