Documentation for zookeeper project

1. workflow:

programs running “worker.jar” first compete for becoming master by trying to create /prj/master znode. If the master znode exists, it becomes worker and listening to /prj/workerK znode. Otherwise it’s the master and will listen to all znodes for worker and jobs. The master will keep spreading out the jobs if any by writing the Job object to /prj/worker. When the worker detects a Job Object written, it will do the calculation logic for a specific parameter and write the result back to /prj/jobK-result node. The /prj/jobK-result znode will check if all the parameters are calculated. For both the master and worker, it has a possibility to die after a job is handed out/ finish the calculation.

programs running “client.jar” will submit 3 jobs to zookeeper in serial and wait for 10 seconds to submit the fourth. When a job is submit, it first create corresponding znodes:/prj/jobK and /prj/jobK-result. There’s a Job class, which contains both the logic of job (in the calculate() function) and parameters. The client will upload a Job object to /prj/jobK after serializing it into byte array and update the job array in the /prj/master node. Then it waits for the result from /prj/jobK-result node.

More details can be found in the comments in the source code.

1. usage

To launch a client program, run

“java –jar /path/to/client.jar [address of zookeeper]” ;

To launch a worker/master program, run

“java –jar /path/to/worker.jar [address of zookeeper]” ;

Note:

Remember to delete the /prj and its children before each run of application, using the command “deleteall /prj” from zookeeper’s interface (because we don’t anticipate the program to stop at a specific time and it’s killed from command line)otherwise the first worker.jar run is still worker.

1. Commands for zookeeper(under zookeeper folder)

Start: ./bin/zkServer.sh start

Stop: ./bin/zkServer.sh stop

Interface: ./bin/zkCli.sh -server localhost

1. The source code can be found in the following github repo:

For worker.jar:(z1 under the folder Zookeeper\_Project)

<https://github.com/SeverinaZheng/Zookeeper_Project/tree/master/z1>

For client.jar:(client under the folder Zookeeper\_Project)

<https://github.com/SeverinaZheng/Zookeeper_Project/tree/master/client>