Software Requirements Specification Document

Performance **T**esting in the **C**loud, Team **30** and **K**avya
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Brief problem statement

The project involves building a performance testing tool on cloud.The tool launches multiple virtual machines on the cloud and from each of these machines, it will perform a test on the target website.It is basically a platform to simulate a large number of users and check the performance of your website/web-application.

System requirements

Programming Language : Python

Platform : Google Compute Engine (Iaas), Google App Engine (Paas)

Frameworks/Libraries : Flask (Micro-Framework), Jinja2 (Templating Engine). Locust (Load testing tool), JMeter, AngularJs (MVW Framework), Multiprocessing, Threading, Gevent

Databases: MongoDb

VCS: Git

Collaboration Tool : Google Docs

Users profile

Webmasters, owners and developers of web based services like websites, apps and APIs that cater to large users and want to load test their product before pushing it into production are the main users of this product.

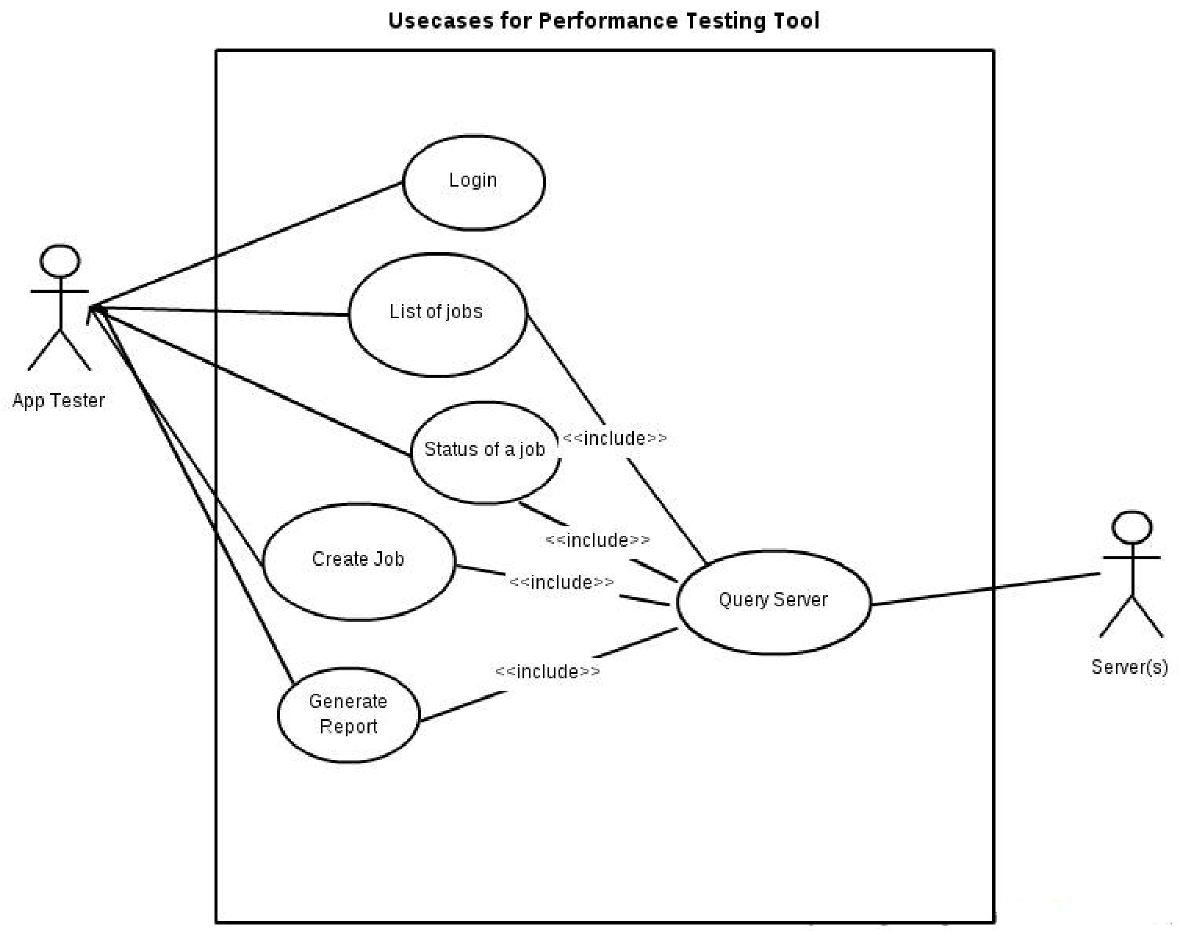
Research Requirements

1.	Locust	Learn, test and benchmark	R1
2.	Jmeter	Learn, test and benchmark	R1
3.	Threading	Learn, test and benchmark	R1
4.	Multiprocessing	Learn, test and benchmark	R1
5.	Gevent	Learn, test and benchmark	R1

Feature requirements (described using use cases)

No.	User Case Name	Description	Release
1.	Login	Customer will login by entering email id and password.	R2
2.	List of Jobs	All jobs that the user has started have to be displayed.	R2
3.	Show Status of a Job	show status of each jobs and which task is going of a particular jobs.	R2
4.	Create a new job	The user creates a new job based on his requirements.	R2
5.	Generate reports for a job	Every job has certain performance features associated which have to be aggregated and displayed.	R2

Use case diagram



Use case description

Use Case Number:	UC-01
Use Case Name:	Login
Overview:	Customer will login using his email id and password
Actors:	App Tester(customer)<<Primary>>
Pre condition:	Customer should have a valid email id.
Flow:	Main (success) Flow: 1. Customer enters email id. 2. Customer enters his password.
	Alternate Flows: 1. If email id or password entered is wrong i.e. not in the database ask customer to reenter email id and password.
Post Condition:	Customer will be redirected to his dashboard.

Use Case Number:	UC-02
Use Case Name:	List of jobs.
Overview:	All jobs that the user has started have to be displayed.
Actors:	App Tester(customer)<<Primary>>, Server<<Secondary>>
Pre condition:	The App Tester must be logged into the system and must have selected a “View Current Jobs” option.
Flow:	Main (success) Flow: 1. The customer queries the system about all the jobs. 2. The servers return a list of jobs alongwith their status. Alternate flow: 1. If there are no jobs, the server gives the customer an option to start a new job..
Post Condition:	A list of current jobs shall be displayed.

Use Case Number:	UC-03
Use Case Name:	Show Status of a Job
Overview:	The customer will come to know the status of each job in detail.
Actors:	App Tester(customer)<<Primary>>, Server<<Secondary>>
Pre condition:	The AppTester must be logged into the system and should select a particular job to see its details.
Flow:	Main (success) Flow: 1. The customer queries the system about a particular job. 2. The server returns the status of various tasks of a job in a particular order in which they are supposed to be done.
Post Condition:	Customer will be able to view the status of various tasks i.e. status of a job.

Use Case Number:	UC-04
Use Case Name:	Creating a new job.
Overview:	The user creates a new job based on his requirements.
Actors:	App Tester(customer)<<Primary>>
Pre condition:	The App tester must be logged in and must have selected the “Create a new job” option.
Flow:	**Main Flow:** 1. The app tester first specifies the number of URL’s he wants to test.He then builds the testcase for each URL. 2. He now specifies the tasks he wants to perform to test the above URL.A task can be a combination of few simple tasks also.Examples of tasks:Send a ABC message to XYZ person,Search for PQR item in flipkart etc. 3. The app tester now specifies the maximum number of concurrent users performing each of the above specified tasks.He, at this level has an option to order his tasks i.e mentioning the tasks to be performed simultaneously and the ones to be performed after another task. 4. The interactive software we build will specify to him the constraints at each level Eg:Facebook gives error when a “same” message is sent to more than a particular number of users from a single logged in user. **Alternate Flow:** 1. Failure of creating a job due to whatsoever reasons will be recorded and taken care by the system administrator.
Post Condition:	A message briefly describing the created job is displayed to confirm with the user.

Use Case Number:	UC-05
Use Case Name:	Generate reports
Overview:	Every job has certain performance features associated which have to be aggregated and displayed.
Actors:	App Tester(Customer)<<Primary>>
Pre condition:	The job for which reports are being generated should have been completed.
Flow:	Main (success) Flow: 1. Customer is redirected to a new page. 2. Server is queried for all data pertaining to a job. 3. The new page displays key metrics like no.of requests, failures, avg response time and no. of requests/sec. Graphs depicting various aspects of load and stress testing are displayed.
Post Condition:	Customer is able to view the results he/she wanted.