

Cloud comp&DevOps  
Assignment 3

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Aim: Deploy Web application on AWS Cloud (or any cloud)(PHP/Python/Node js any application)

Theory:

1) **Cloud Computing Definition**

Ans)Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software. Rather than keeping files on a proprietary hard drive or local storage device, As long as an electronic device has access to the web, it has access to the data and the software programs to run it.

2)**Cloud service model & Cloud Deployment Model**

**A)Cloud service model:**Cloud-service model can be chosen from the *cloud stack*, which comprises of a *trio of cloud computing (also distinct business) models*, that are differentiated on the basis of key players, resources, value-created, costs, and revenue streams:

a)Software as a Service (SaaS) is a model where the software application is delivered as a service over the internet, and businesses access the service through a web browser. The great advantage of this model is the ability to serve multiple businesses from a virtual environment, and the ease of delivering any changes, upgrades, and modifications to the software through a click-to-deploy model. In a SaaS model, businesses don't get locked into expensive long-term contracts for software support and maintenance, and the vendor secures a recurring stream of subscription revenue, which is valued far more than one-time licensing income.

b)Platform as a Service (PaaS) is a service model that provides a virtual platform to develop, deploy, and manage application lifecycle for solutions that are consumed over the internet. In this model of cloud computing, one can access on-demand environment for rapid development, testing, delivery and maintenance of software applications, in other words the entire platform from software development to delivery. PaaS caters to the engineering /product development needs of a business, and is a variant of SaaS with additional architectural and utility components, and is typically used for rapid development and deployment of mobile and web-based apps.

c)Infrastructure as a Service (IaaS) is the most basic cloud-service model that provides computing infrastructure as a service in a subscription mode. IaaS serves the needs of the IT organization, and dispenses with the need for businesses to make upfront investments in the technology infrastructure.

**B)Cloud deployment model:**An appropriate *cloud-deployment model* must be selected for delivering your cloud services:

a)Private Cloud:It is a mode of deployment where the cloud computing infrastructure is operated exclusively for a single business or customer. In this model, cloud computing services are delivered through a private network, and the associated infrastructure can be either located physically with the business or can also be hosted by a third-party service provider.

b)Public Cloud:It is where the computing services are delivered and accessed through a public network that is open for all. In this deployment model, a third-party service provider owns and supports all the underlying infrastructure including all hardware, software, and network bandwidth. Amazon Web Services (AWS), Microsoft Azure, and Google Cloud are some of the well-known Public Clouds.

c)Hybrid cloud:It is a composition of two or more clouds (private, community or public) that remain distinct entities but are bound together, offering the benefits of multiple deployment models. In this deployment model, sharing of the underlying infrastructure and seamless service delivery across public and private networks is facilitated by technology. Hybrid cloud is increasingly becoming popular for its flexibility, and for some businesses, offers the added comfort of multi-tiered security and data protection.

### 3) To deploy our website we follow the steps given below:

Step 1: Install firebase cli

cmd-\$ npm install -g firebase-tools

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.22000.1455]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Rohan Nagwade>npm -v
8.19.3

C:\Users\Rohan Nagwade>npm install -g firebase-tools
npm WARN deprecated har-validator@5.1.3: this library is no longer supported
npm WARN deprecated debug@4.1.1: Debug versions >=3.2.0 <3.2.7 || >=4 <4.3.1 have a low-severity ReDos r
sed in a Node.js environment. It is recommended you upgrade to 3.2.7 or 4.3.1. (https://github.com/vision
ues/797)
npm WARN deprecated uuid@3.4.0: Please upgrade to version 7 or higher. Older versions may use Math.random()
circumstances, which is known to be problematic. See https://v8.dev/blog/math-random for details.
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request/
changed 701 packages, and audited 702 packages in 12s

44 packages are looking for funding
  run `npm fund` for details

1 moderate severity vulnerability

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
```

Step 2:

- a) Sign-in google:  
cmd-\$ firebase login
- b) Initiate your project  
cmd-\$ firebase init

```
C:\Windows\system32\cmd.exe

C:\Users\Rohan Nagwade>firebase login
i Firebase optionally collects CLI and Emulator Suite usage and error reporting information to help improve our product
s. Data is collected in accordance with Google's privacy policy (https://policies.google.com/privacy) and is not used to
identify you.

? Allow Firebase to collect CLI and Emulator Suite usage and error reporting information? Yes
i To change your data collection preference at any time, run `firebase logout` and log in again.

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgm47bqnekij5i8b5pr03ho849e6.apps.googleusercontent
.com&scope=email%20openid%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww
.googleapis.com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform&response_type=code&state=54
3772676&redirect_uri=http%3A%2F%2Flocalhost%3A9005

Waiting for authentication...

+ Success! Logged in as rohannagwade420@gmail.com

C:\Users\Rohan Nagwade>cdc C:\Users\Rohan Nagwade\Desktop\Dice-Challenge
'cdc' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Rohan Nagwade>cd C:\Users\Rohan Nagwade\Desktop\Dice-Challenge

C:\Users\Rohan Nagwade\Desktop\Dice-Challenge>firebase init

#####  #####  #####  #####  #####  ###  #####  #####
##      ##  ##  ##  ##      ##      ##  ##  ##  ##      ##
#####  ##  #####  #####  #####  #####  #####  #####
##      ##  ##  ##  ##      ##      ##  ##  ##  ##      ##
```

Step 3:

Deploy to Firebase Hosting

cmd-\$firebase deploy

```
C:\Windows\system32\cmd.exe
C:\Users\Rohan Nagwade\Desktop\Dice-Challenge>firebase deploy

=== Deploying to 'dicegame-7e90f'...

i  deploying hosting
i  hosting[dicegame-7e90f]: beginning deploy...
i  hosting[dicegame-7e90f]: found 12 files in public
+  hosting[dicegame-7e90f]: file upload complete
i  hosting[dicegame-7e90f]: finalizing version...
+  hosting[dicegame-7e90f]: version finalized
i  hosting[dicegame-7e90f]: releasing new version...
+  hosting[dicegame-7e90f]: release complete

+  Deploy complete!

Project Console: https://console.firebase.google.com/project/dicegame-7e90f/overview
Hosting URL: https://dicegame-7e90f.web.app

C:\Users\Rohan Nagwade\Desktop\Dice-Challenge>
```