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Cloud Application Deployment.

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A serverless taxi booking web application.

Application platforms we will be using and reasons to choose AWS Cloud service provider.

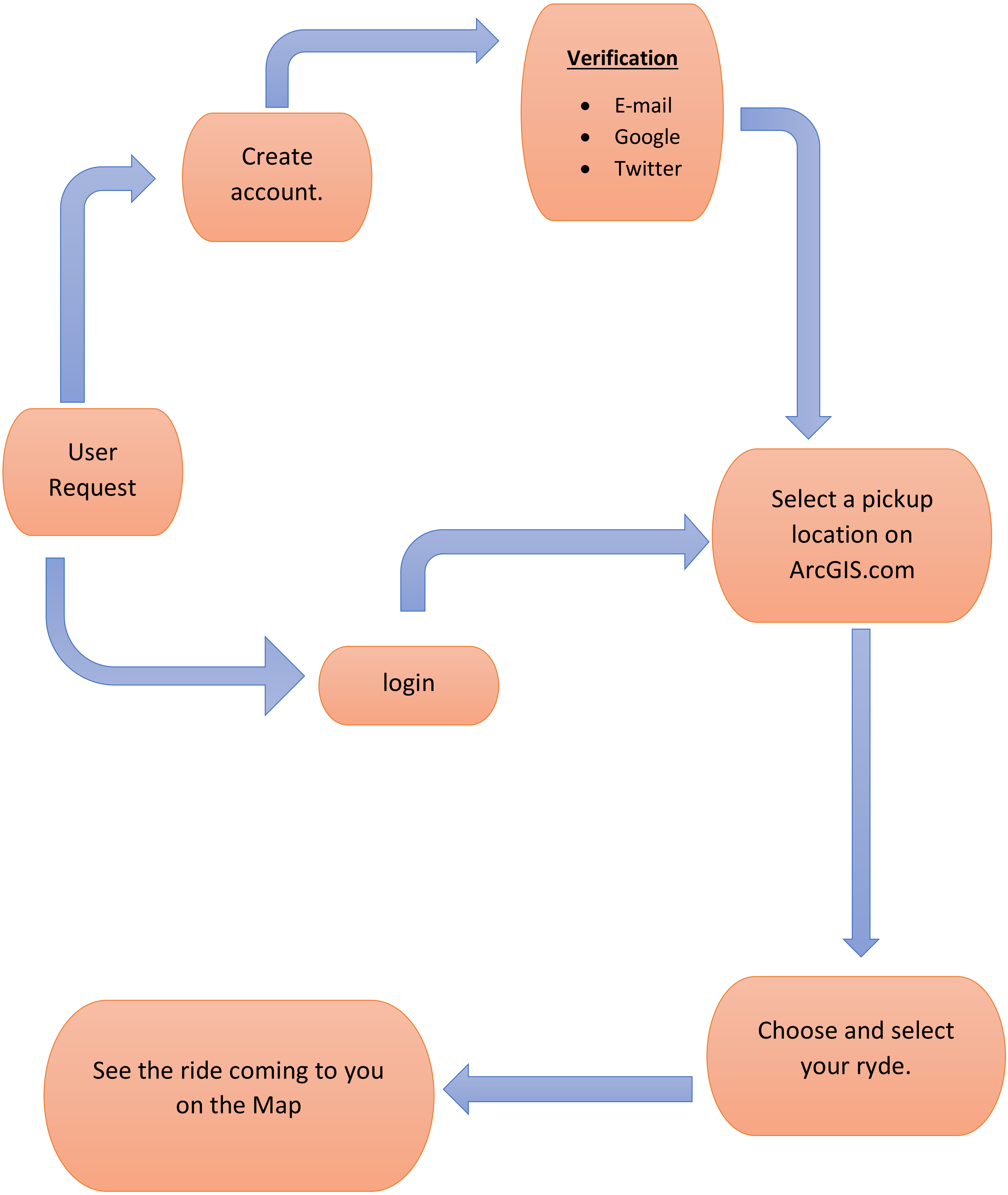
For our project we are going to use AWS cloud service provider, as it provides on demand, scalable, secure, and fully managed platform for our project.

For our project, we are required with a repository to store and manage our code, service to automatically build and deploy our updated code (CI/CD), authentication service, a serverless tool, a service to trigger the serverless tool, and a database.

Above mentioned all the requirements can be fulfilled by AWS amplify, amazon Cognito, lambda function, API gateway, and DynamoDB respectively.

These services provided by AWS are easy to use and implement, scalable, secure, and offers pay as you use.

User Request flow diagram


User Request
Create account.
Verification
E-mail
Google
Twitter
login
Select a pickup location on ArcGIS.com
Choose and select your ryde.
See the ride coming to you on the Map

Application platform and reason (contd.)

1. **AWS Amplify:** it is a service offered by AWS which helps the users to build and deploy a full-Stack application with highly scalability and security.

   So, if we were not using the cloud-based solution, then we need to setup our own infrastructure, and need to manage the servers and the backend application.
   Also, amplify provides us a public link through which the customer can access our website, so we do not need to purchase for a public DNS for our website in the initial phases and hence is cost effective. Also we have used our on premise server, then we need to be worry about to setup the proper environment to run our code and manage the physical servers.

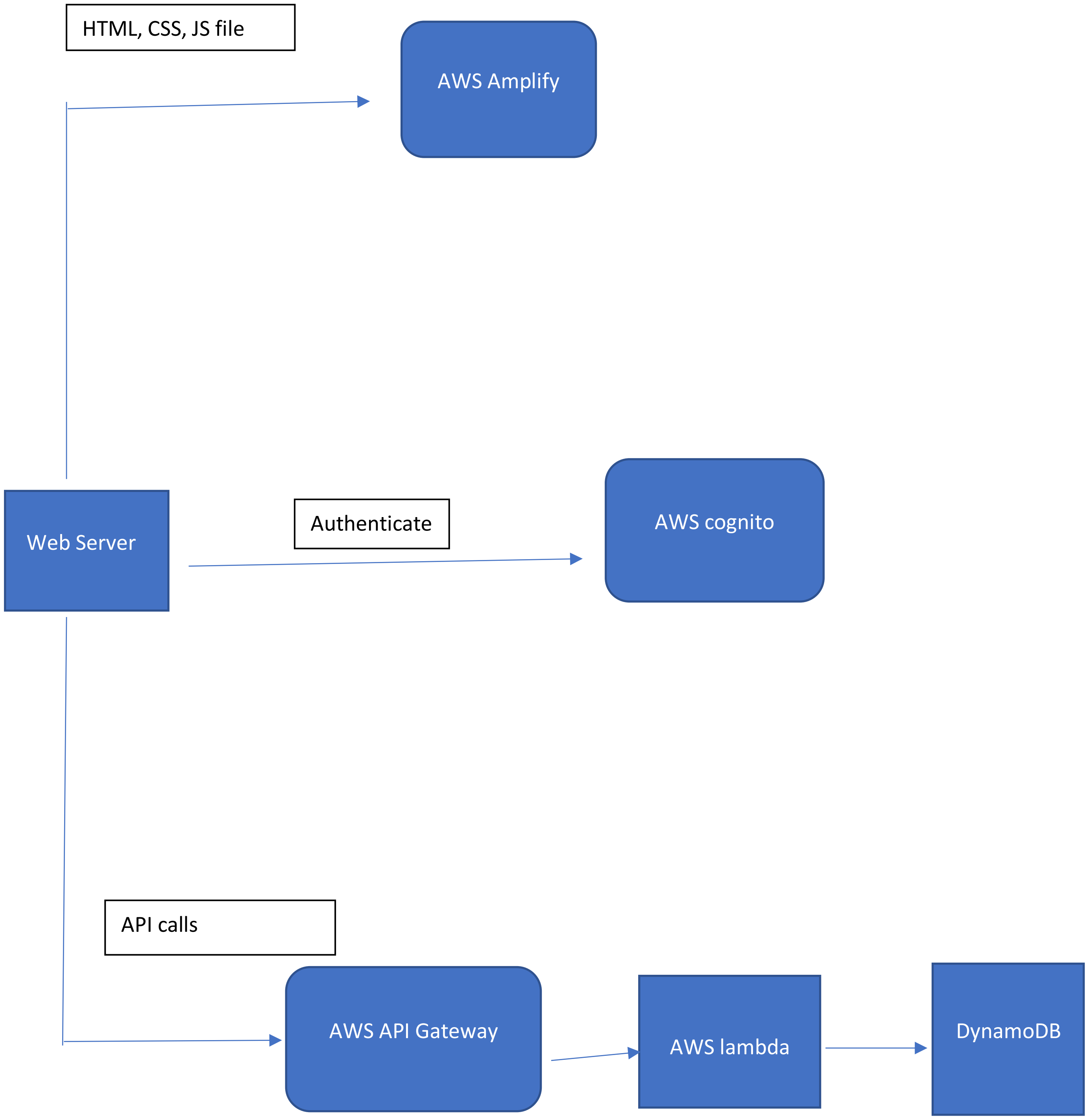
2. **AWS Cognito:** It is a service offered by AWS which helps us for Authentication and authorisation of the users accessing our website or application.
   Cognito maintains user pool and identity pool. Under user pool, it maintains tha data of the user and is responsible for authentication whereas identity pool will provide the permissions (authorization) to the users to after the successful authentication is done.

   Whereas, if we have used on premise strategy, then the authorisation and authentication processes are really complex and challenging to perform (or merely impossible to be done for small Sartups).
   Hence, it increases the security of our website and easily filters the unknown (unauthorized users).

3. **DynamoDB:** It is the fully managed NoSQL database provided by the AWS to store the data in the form of rows and columns with high scalability. It is highly scalable so we only need to pay for the amount of storage we will use as per our traffic.
   So, in our previous days, with low Expenditure cost, we do not need think for the overhead of storage capacity.

4. **Lambda function:** it helps us to run our code on high availability compute resources. It is event triggered and has the capacity to automatically scale.
   with the help of lambda function on cloud, we are making our application as serverless. The lambda function also provides us the 1 millions of instruction for free of cost and even responsible of scaling of resources in case of sudden increase in high request. Whereas, if was very difficult to process, manage and respond to a million of instructions in case of on premise setup and would have required high capex and opex with high skilled IT professionals.

Flowchart of the services (Designed application of public cloud-AWS):



Literature Review:

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