**Question 1**:

**Intent** : Learn the basics of how web applications are built and what technologies could be used for web applications.

Suppose you were given to build a web application for <https://www.boats.com/> from scratch as a startup . Imagine you would be solely responsible to build it’s frontend, backend, design database, setup media storage, deployment, ci/cd automation and everything else. Thus, do some research on your part and write down your response to the following questions.

1. Which backend framework would you prefer to use and why?
2. Which frontend framework would you prefer to use and why?
3. Which database would you prefer to use and why?
4. What would you use for version control of the codebase ?
5. Which platform would you prefer for media storages ( eg. storage of product images) ?.
6. Where would you deploy your application and which web server would you use and why?

a. Which backend framework would you prefer to use and why?

Django is a good choice for startups as it offers many built-in features, such as authentication and administration interfaces, which helps in faster development. Additionally, it is known for its robustness and scalability, making it a suitable choice for building complex web applications.

b. Which frontend framework would you prefer to use and why?

React is a popular JavaScript library for building dynamic user interfaces. It provides a component-based architecture, which makes it easy to build reusable UI components, making development faster and more efficient. It also has a vast ecosystem of libraries and tools that can help in building complex UIs.

c. Which database would you prefer to use and why?

AWS RDS is a fully managed relational database service that makes it easy to set up, operate, and scale a relational database in the cloud. It supports various popular database engines such as MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server. It provides automatic backups, software patching, and monitoring, making it easy for startups to focus on their core business.

d. What would you use for version control of the codebase ?

GitHub is the largest and most popular Git hosting platform, providing a wide range of features for managing code, collaborating with team members, and integrating with other tools. It also has a large community of users and developers, making it easy to find resources and support. GitHub offers a free plan for public repositories and a paid plan for private repositories, making it a cost-effective choice for startups.

e. Which platform would you prefer for media storages ( eg. storage of product images) ?

Amazon S3 is one of the most popular cloud storage platforms, providing scalable and reliable storage for various types of data, including media files. It offers a simple web interface and APIs for uploading, storing, and retrieving files. Amazon S3 is also highly available and durable, making it a good choice for storing mission-critical media files. Additionally, it provides a tiered storage model that allows startups to optimize their costs based on the frequency of access to their media files.

f. Where would you deploy your application and which web server would you use and why?

Cloud platforms like Amazon Web Services (AWS) and Microsoft Azure provide an easy way to deploy web applications. They offer a range of services and tools for managing applications, scaling resources, and monitoring performance. Cloud platforms also provide automatic load balancing and high availability, making them a good choice for startups that need to scale quickly.