

4. Introduction to Bootstrap

1. What is Bootstrap, and why is it useful for website design?

Ans:

Bootstrap is a **CSS + JavaScript framework** that provides ready-made classes for building fast, responsive websites.

It's useful because:

- It speeds up development.
- It gives pre-built components (navbars, cards, buttons).
- It makes websites automatically responsive using its grid system.
- It keeps the design consistent across all browsers.

2. Explain the Bootstrap grid system and how it helps create responsive layouts.

Ans:

Bootstrap uses a **12-column grid system**.

You assign how many columns an element should take on different screen sizes using classes like:

- col- (extra small)
- col-sm-
- col-md-
- col-lg-
- col-xl-

This system makes the layout adjust automatically based on screen size, so you don't have to write many media queries yourself.

3. List and explain at least three Bootstrap components.

Ans:

Navbar

A responsive menu bar that collapses into a toggle menu on mobile.

Cards

A structured UI block that supports images, text, descriptions, and buttons.

Buttons

Pre-styled buttons with classes like btn, btn-primary, btn-danger.

(Extra: **Modals, Carousels**)

5. Advance Bootstrap Components.

1. Explain how modals and carousels work in Bootstrap.

✓ Modal

- Hidden rehta hai by default.
- JavaScript trigger (button data-bs-toggle="modal") se open hota hai.
- Uses classes: modal, modal-dialog, modal-content.

✓ Carousel

- Image slider with automatic + manual navigation.
- Classes: carousel, carousel-inner, carousel-item.
- JS attributes control speed, pause, arrows.

2. Purpose of utility classes in Bootstrap + examples.

Utility classes = small single-purpose classes jo custom CSS likhne ki zaroorat kam karte hain.

Examples.

- Spacing → m-3, p-4, mt-2
- Text color → text-danger, text-primary
- Background → bg-dark, bg-warning
- Display → d-flex, d-none
- Alignment → justify-content-center, text-center

3. Importance of customizing Bootstrap variables

- Tum project ka **unique theme** bana sakti ho.
- Colors, spacing, border radius, button styles modify kar sakti ho.
- Helps avoid a “generic Bootstrap look.”
- Variables SCSS me change hote hain ya CSS override se.

Examples:

- Change primary color
- Increase border radius
- Customize button padding

