Services &
Dependency Injection

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Why Services?

Reusable

Example: FlightService

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What types of Services?

Infrastructure (API/Backend)	Application (Functions)
Communication bw. Comp.	State Management

Service

```
@Injectable({ providedIn: 'root' })
export class FlightService {

    […]

}
```

Service

global scope

```
@Injectable({ providedIn: 'root' })
export class FlightService {

    […]

}
```

services are singletons

(in their "scope")

Consumer gets injected service

```typescript
@Component({
    selector: 'app-flight-search',
    templateUrl: 'flight-search.component.html'
})
export class FlightSearchComponent {
    from = '';
    to = '';
    flights: Flight[] = [];

    private readonly flightService = inject(FlightService);

    search(): void { [...] }
    select(flight): void { [...] }
}
```

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Consumer gets injected service in constructor

```typescript
@Component({
    selector: 'app-flight-search',
    templateUrl: 'flight-search.component.html'
})
export class FlightSearchComponent {
    from = '';
    to = '';
    flights: Flight[] = [];

                                              Token

    constructor(private readonly flightService: FlightService) { … }

    search(): void { [...] }
    select(flight): void { [...] }
}
```

Token vs. Service

- Token: What the consumer requests
  (e. g. FlightService)

- Service: What the consumer receives
  (e. g. AdvancedFlightService)

Token

- Almost everything can be a token

- In most cases: default implementation of service

- Abstract (Base)-Class

- Constant

- But no interface

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Factory

```
@Injectable({
    providedIn: 'root',
    useFactory: (http: HttpClient) => {
        return new DefaultFlightService(http);
    },
    deps: [HttpClient]
})
export abstract class FlightService {
    abstract find(from: string, to: string): Observable<Flight[]>;
}
```

Factory

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@Injectable({
    providedIn: 'root',
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```

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Factory

```typescript
@Injectable({
    providedIn: 'root',
    useFactory: (http: HttpClient) => {
        if (environment.production) {
            return new DefaultFlightService(http);
        } else {
            return new DummyFlightService(http);
        }
    },
    deps: [HttpClient]
})
export abstract class FlightService {
    abstract find(from: string, to: string): Observable<Flight[]>;
}
```

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