# The QuoteServices App Case Study: Base* Super Class Structure & Functionality


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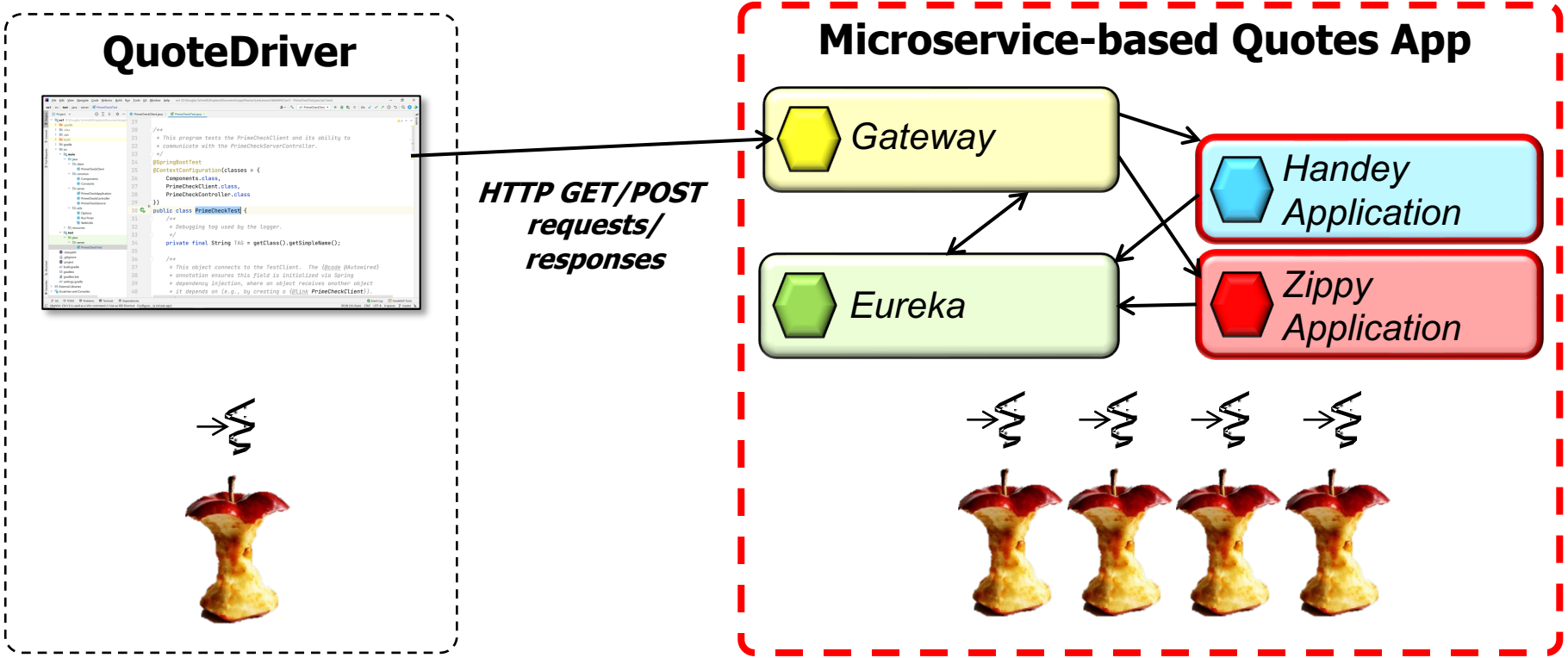
# Learning Objectives in this Part of the Lesson

- Understand the structure & functionality of the super classes BaseApplication, BaseController, & BaseService




These super classes provide customizable foundation for the Quote microservices

# Structure & Functionality of the BaseApplication

# Structure & Functionality of the BaseApplication

- BaseApplication generically defines a Eureka-enabled microservice

```
public class BaseApplication {


  public static void run(Class<?> clazz, String[] args) {
    var name = getName(clazz);
    var app = new SpringApplicationBuilder(clazz)
      .properties(singletonMap("spring.application.name",
                               name))
      .build();
    app.setAdditionalProfiles(name);
    app.setLazyInitialization(true);
    app.run(args);
  }
  ...
```

*This class is extended by Handey Application & ZippyApplication*

See microservices/src/main/java/edu/vandy/quoteservices/common/BaseApplication.java

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    app.setAdditionalProfiles(name);
    app.setLazyInitialization(true);
    app.run(args);
  }
  ...
```

*Builds a Spring Boot micro service with the clazz name*

# Structure & Functionality of the BaseApplication

- BaseApplication generically defines a Eureka-enabled microservice

```
public class BaseApplication {


  public static void run(Class<?> clazz, String[] args) {
    var name = getName(clazz);
    var app = new SpringApplicationBuilder(clazz)
      .properties(singletonMap("spring.application.name",
                               name))
    ...
  }
  private static String getName(Class<?> clazz) {
    String pkg = clazz.getPackage().getName();
    return pkg.substring(pkg.lastIndexOf('.') + 1);
  }
```

*Get the name of the microservice application*

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  private static String getName(Class<?> clazz) {
    String pkg = clazz.getPackage().getName();
    return pkg.substring(pkg.lastIndexOf('.') + 1);
  }
```

*Set the name as a property of the app, which can then be used with Eureka*

# Structure & Functionality of the BaseController

# Structure & Functionality of the BaseController

- BaseController maps HTTP GET/POST requests to endpoint handler methods

```
public abstract class BaseController<T> {
   ...
   @Autowired
   BaseService<T> mService;
   ...
   @PostMapping(POST_QUOTES)
   public T postQuotes(@RequestBody List<Integer> quoteIds,
                       Boolean parallel)
   { return mService.postQuotes(quoteIds, parallel); }

   @PostMapping(POST_SEARCHES)
   public T search(@RequestBody List<String> queries,
                   Boolean parallel)
   { return mService.search(queries, parallel); }
}
```

*This class is extended by HandeyController & ZippyController*

See microservices/src/main/java/edu/vandy/quoteservices/common/BaseController.java

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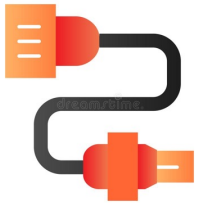

*This field is auto-wired by Spring's dependency injection framework*

See www.baeldung.com/spring-autowire

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   public T search(@RequestBody List<String> queries,
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   { return mService.search(queries, parallel); }
}
```

*These methods forward to the Handey Service methods & return the results back to the client*

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   public T search(@RequestBody List<String> queries,
                   Boolean parallel)
   { return mService.search(queries, parallel); }
}
```

*These annotations map HTTP GET & POST requests onto endpoint handler methods*

See www.baeldung.com/spring-new-requestmapping-shortcuts

# Structure & Functionality of the BaseController

- BaseController maps HTTP GET/POST requests to endpoint handler methods

```
public abstract class BaseController<T> {
   ...
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   @PostMapping(POST_SEARCHES)
   public T search(@RequestBody List<String> queries,
                   Boolean parallel)
   { return mService.search(queries, parallel); }
}
```

*These strings automatically identify & route to endpoint handler methods from incoming GET & POST requests*

See www.baeldung.com/spring-new-requestmapping-shortcuts

# Structure & Functionality of the BaseController

- BaseController maps HTTP GET/POST requests to endpoint handler methods

```
public abstract class BaseController<T> {
  ...
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  @PostMapping(POST_SEARCHES)
  public T search(@RequestBody List<String> queries,
                  Boolean parallel)
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}
```

*This annotation automatically deserializes the inbound HttpRequest body onto a Java object*

See www.baeldung.com/spring-request-response-body

# Structure & Functionality of the BaseController

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                   Boolean parallel)
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}
```

*Note the generic param that's used to define the return type*

Generics enables BaseController to work for both classic & reactive Java types

# Structure & Functionality of the BaseService

# Structure & Functionality of the HandeyService

- BaseService defines a reusable/customizable Quote service API

```
public interface BaseService<T> {


  T postQuotes(List<Integer> quoteIds,
               Boolean parallel);

  T search(List<String> queries,
           Boolean parallel);
}
```

*This super class is extended by HandeyService & ZippyService*

See microservices/src/main/java/edu/vandy/quoteservices/common/BaseService.java

# Structure & Functionality of the HandeyService

- BaseService defines a reusable/customizable Quote service API

```
public interface BaseService<T> {


   T postQuotes(List<Integer> quoteIds,
                Boolean parallel);

   T search(List<String> queries,
            Boolean parallel);
}
```

*These methods are overridden & implemented in the subclasses*

# Structure & Functionality of the HandeyService

- BaseService defines a reusable/customizable Quote service API

```
public interface BaseService<T> {

  T postQuotes(List<Integer> quoteIds,
               Boolean parallel);

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*Note the generic param that's used to define the return type*

Generics enables BaseService to work for both classic & reactive Java types

# End of the QuoteServices App Case Study: Base* Super Class Structure & Functionality