

1. Create a simple RESTful service in Spring Boot which returns the Response "Welcome to spring boot".

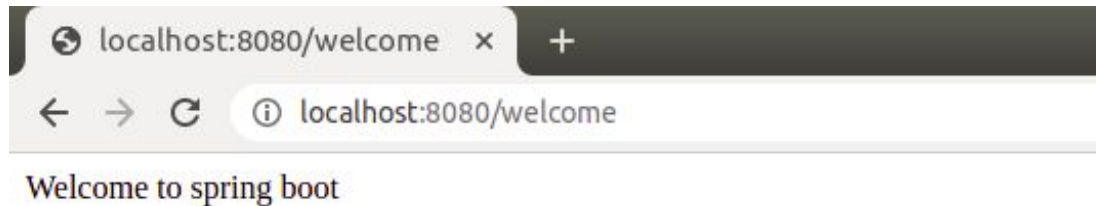
```
package com.bootcamp.demo;

import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;

@RestController
public class Welcome {

    @GetMapping(path = "/welcome")
    public String welcome1(){
        return "Welcome to spring boot";
    }

}
```



2. Create an Employee Bean(id, name, age) and service to perform different operations related to employee.

//Employee Class

```
package com.bootcamp.demo.employee;

public class Employee {
    private Integer id,age;
    private String name;

    public Integer getId() {
        return id;
    }

    public void setId(Integer id) {
        this.id = id;
    }

    public Integer getAge() {
        return age;
    }

    public void setAge(Integer age) {
        this.age = age;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public Employee(Integer id, Integer age, String name) {
        this.id = id;
        this.age = age;
        this.name = name;
    }
}
```

//EmployeeService Class

```
package com.bootcamp.demo.employee;

import org.springframework.stereotype.Component;

import java.util.ArrayList;
import java.util.List;

@Component
public class EmployeeService {
    private static List<Employee> emp=new ArrayList<>();

    static {
        emp.add(new Employee(1,23,"Gaurav"));
        emp.add(new Employee(2,33,"Rahul"));
        emp.add(new Employee(3,25,"Megha"));
    }
    public List<Employee> findAll(){
        return emp;
    }
    public Employee empAdd(Employee e){
        emp.add(e);
        return e;
    }
    public Employee findOne(int id){
        for(Employee e:emp){
            if(e.getId()==id) return e;
        }
        return null;
    }
}
```

//EmployeeRequest Class

```
package com.bootcamp.demo.employee;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;
import java.util.List;

@RestController
public class EmployeeRequest {
```

```

@Autowired
private EmployeeService service;

@GetMapping(path = "emp")
public List<Employee> getAll(){
    return service.findAll();
}

@GetMapping(path = "emp/get-one/{id}")
public Employee getOne(@PathVariable int id)
{
    return service.findOne(id);
}

@PostMapping(path = "emp")
public Employee add(@RequestBody Employee e){
    Employee a= service.empAdd(e);
    return e;
}
}

```

3. Implement GET http request for Employee to get list of employees.

//EmployeeRequest Class

```

package com.bootcamp.demo.employee;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;
import java.util.List;

@RestController
public class EmployeeRequest {

    @Autowired
    private EmployeeService service;

    @GetMapping(path = "emp")
    public List<Employee> getAll(){
        return service.findAll();
    }
}

```

```

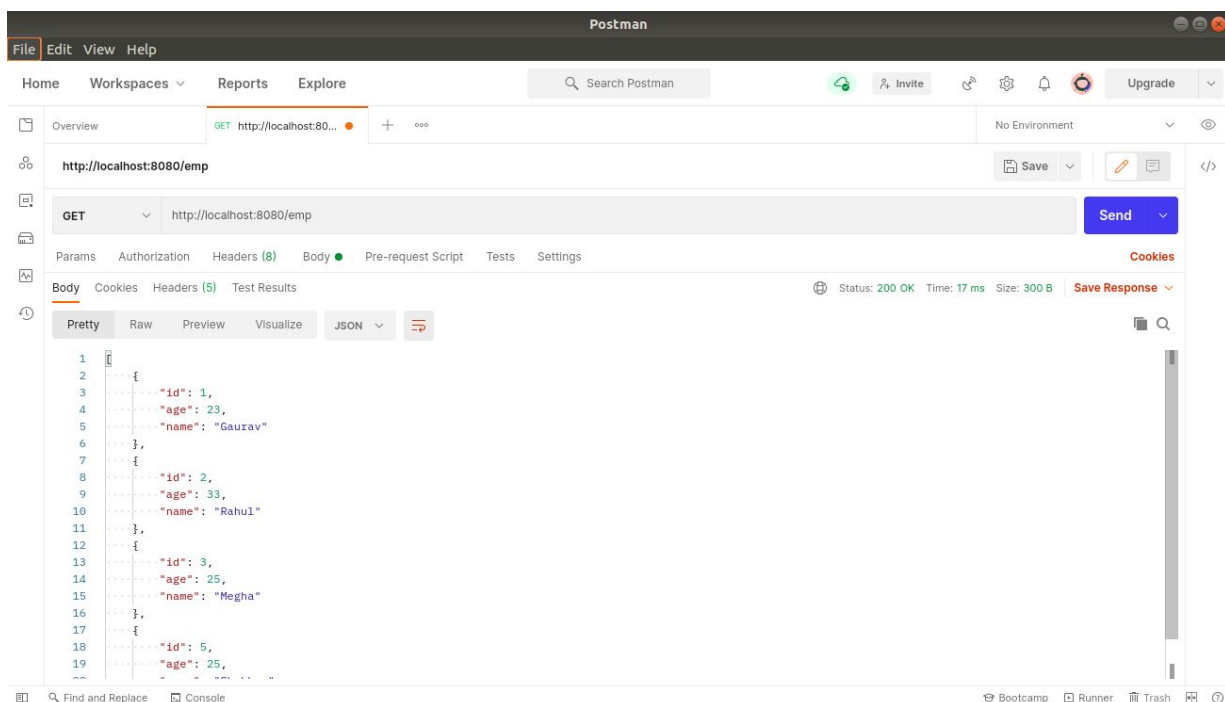
@GetMapping(path = "emp/get-one/{id}")
public Employee getOne(@PathVariable int id)
{
    return service.findOne(id);
}

```

```

@PostMapping(path = "emp")
public Employee add(@RequestBody Employee e){
    Employee a= service.empAdd(e);
    return e;
}
}

```



4. Implement GET http request using path variable to get one employee

//EmployeeRequest Class

```
package com.bootcamp.demo.employee;
```

```

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;
import java.util.List;

```

```
@RestController
```

```

public class EmployeeRequest {

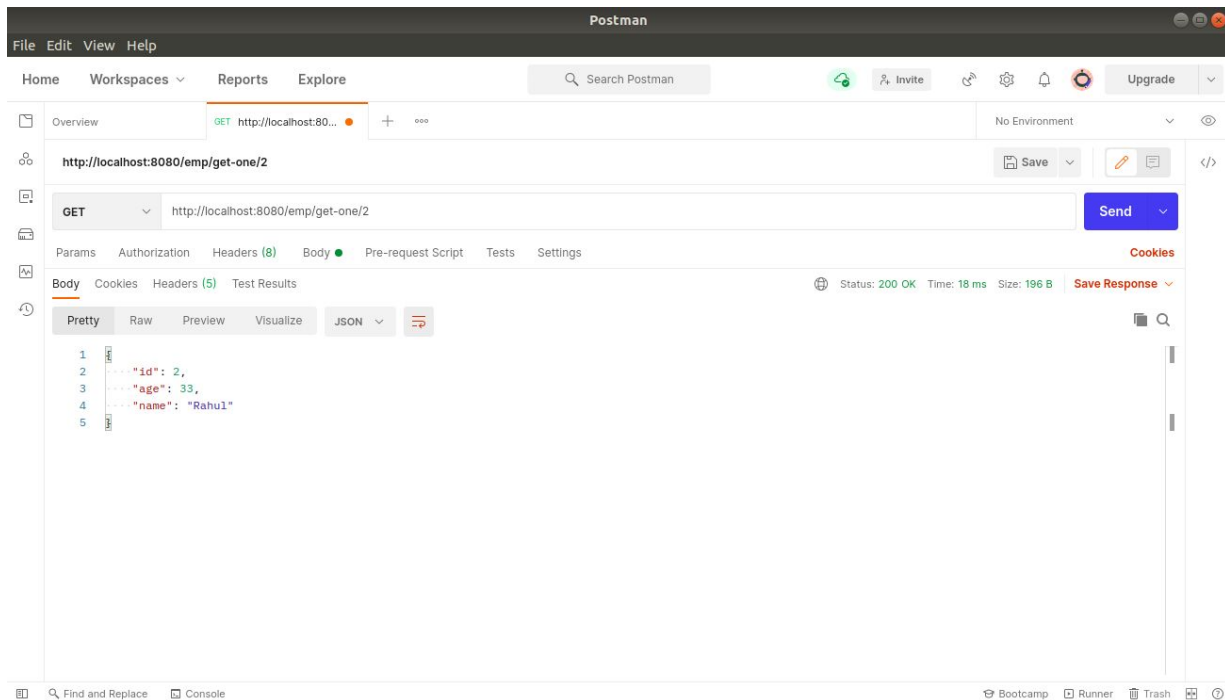
    @Autowired
    private EmployeeService service;

    @GetMapping(path = "emp")
    public List<Employee> getAll(){
        return service.findAll();
    }

    @GetMapping(path = "emp/get-one/{id}")
    public Employee getOne(@PathVariable int id)
    {
        return service.findOne(id);
    }

    @PostMapping(path = "emp")
    public Employee add(@RequestBody Employee e){
        Employee a= service.empAdd(e);
        return e;
    }
}

```



5. Implement POST http request for Employee to create a new employee.

//EmployeeRequest Class

```
package com.bootcamp.demo.employee;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.web.bind.annotation.*;
import java.util.List;

@RestController
public class EmployeeRequest {

    @Autowired
    private EmployeeService service;

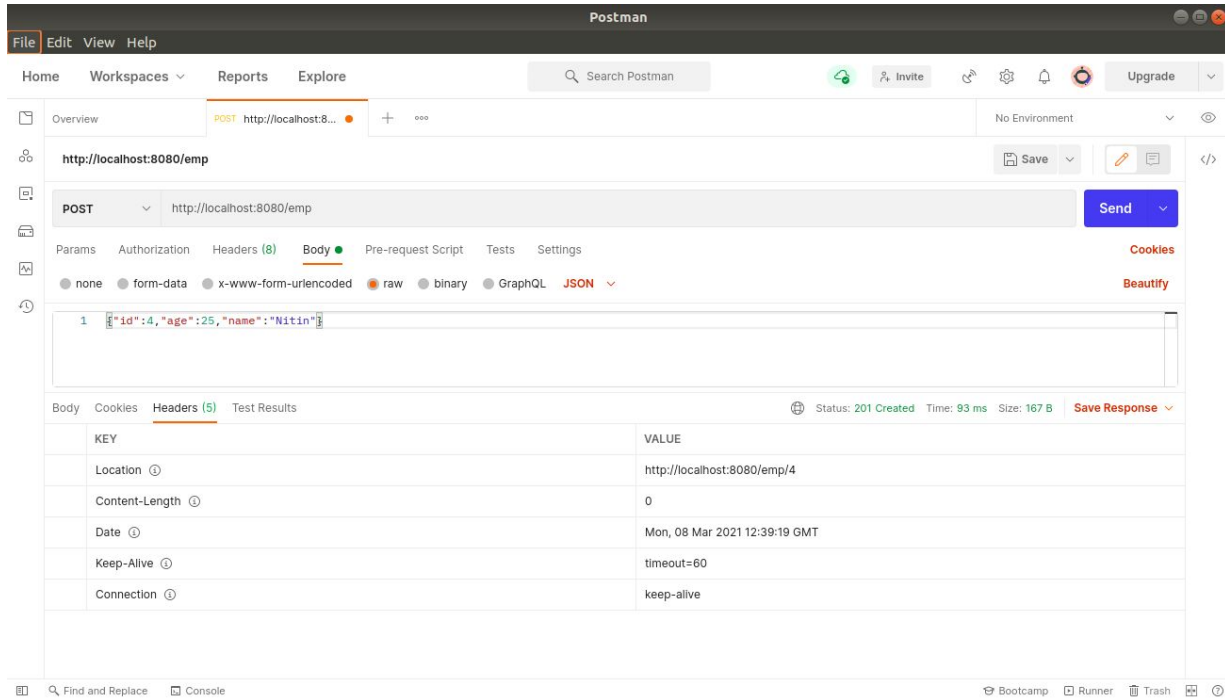
    @GetMapping(path = "emp")
    public List<Employee> getAll(){
        return service.findAll();
    }

    @GetMapping(path = "emp/{id}")
    public Employee getOne(@PathVariable int id)
    {
        return service.findOne(id);
    }

    @PostMapping(path = "emp")
    public Employee add(@RequestBody Employee e){
        Employee a= service.empAdd(e);

        URI location= ServletUriComponentsBuilder
        .fromCurrentRequest().path("/{id}").buildAndExpand(a.getId()).toUri();

        return ResponseEntity.created(location).build();
    }
}
```



6. Implement Exception Handling for resource not found

//EmployeeRequest Class

```
package com.bootcamp.demo.employee;
```

```
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.*;
import org.springframework.web.client.HttpClientErrorException;
import org.springframework.web.servlet.support.ServletUriComponentsBuilder;
```

```
import java.net.URI;
import java.util.List;
```

```
@RestController
public class EmployeeRequest {
```

```
    @Autowired
    private EmployeeService service;
```



```

@GetMapping(path = "emp")
public List<Employee> getAll(){
    return service.findAll();
}

```

```

@GetMapping(path = "emp/{id}")
public Employee getOne(@PathVariable int id) {
    Employee obj = service.findOne(id);
    if(obj==null){
        throw new EmployeeNotFoundException("id : "+id);
    }
    return obj;
}

```

```

@PostMapping(path = "emp")
public ResponseEntity<Object> add(@RequestBody Employee e){
    Employee a= service.empAdd(e);

```

```

        URI location=
        ServletUriComponentsBuilder.fromCurrentRequest().path("/{id}").buildAndExpand(a.getId()).toUri(
        );

        return ResponseEntity.created(location).build();

    }

}

```

//EmployeeNotFoundException Class

```

package com.bootcamp.demo.employee;

import org.springframework.http.HttpStatus;
import org.springframework.web.bind.annotation.ResponseStatus;

@ResponseStatus(HttpStatus.NOT_FOUND)
public class EmployeeNotFoundException extends RuntimeException {
    public EmployeeNotFoundException(String s) {
        super(s);
    }
}

```

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Overview

GET http://localhost:80...

No Environment

http://localhost:8080/emp/50

Save

GET http://localhost:8080/emp/50

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

Body Cookies Headers (5) Test Results

Status: 404 Not Found Time: 62 ms Size: 5.14 KB Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "timestamp": "2021-03-08T12:55:46.052+00:00",
3   "status": 404,
4   "error": "Not Found",
5   "trace": "com.bootcamp.demo.employee.EmployeeNotFoundException: id : 50\n\tat com.bootcamp.demo.employee.EmployeeRequest.getOne(EmployeeRequest.java:27)\n\tat java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)\n\tat java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)\n\tat java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)\n\tat java.base/java.lang.reflect.Method.invoke(Method.java:566)\n\tat org.springframework.web.method.support.InvocableHandlerMethod.doInvoke(InvocableHandlerMethod.java:197)\n\tat org.springframework.web.method.support.InvocableHandlerMethod.invokeForRequest(InvocableHandlerMethod.java:141)\n\tat org.springframework.web.servlet.mvc.method.annotation.ServletInvocableHandlerMethod.invokeAndHandle(ServletInvocableHandlerMethod.java:106)\n\tat org.springframework.web.servlet.mvc.method.annotation.RequestMappingHandlerAdapter.invokeHandlerMethod(RequestMappingHandlerAdapter.java:894)\n\tat org.springframework.web.servlet.mvc.method.annotation.RequestMappingHandlerAdapter.handleInternal(RequestMappingHandlerAdapter.java:808)\n\tat org.springframework.web.servlet.mvc.method.AbstractHandlerMethodAdapter.handle(AbstractHandlerMethodAdapter.java:87)\n\tat org.springframework.web.servlet.DispatcherServlet.doDispatch(DispatcherServlet.java:1060)\n\tat org.springframework.web.servlet.DispatcherServlet.doService(DispatcherServlet.java:962)\n\tat org.springframework.web.servlet.FrameworkServlet.processRequest(FrameworkServlet.java:1006)\n\tat org.springframework.web.servlet.FrameworkServlet.doGet(FrameworkServlet.java:898)\n\tat javax.servlet.http.HttpServlet.service(HttpServlet.java:626)\n\tat org.springframework.web.servlet.FrameworkServlet.service(FrameworkServlet.java:883)\n\tat javax.servlet.http.HttpServlet.service(HttpServlet.java:733)\n\tat org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:227)\n\tat org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:159)"/>

```

Find and Replace Console

Bootcamp Runner Trash

7. Implement DELETE http request for Employee to delete employee

//EmployeeService

```
package com.bootcamp.demo.employee;
import org.springframework.stereotype.Component;
import java.util.ArrayList;
import java.util.List;

@Component
public class EmployeeService {
    private static List<Employee> emp=new ArrayList<>();

    static {
        emp.add(new Employee(1,23,"Gaurav"));
        emp.add(new Employee(2,33,"Rahul"));
        emp.add(new Employee(3,25,"Megha"));
    }
    public List<Employee> findAll(){
        return emp;
    }
    public Employee empAdd(Employee e){
        emp.add(e);
        return e;
    }
    public Employee findOne(int id){
        for(Employee e:emp){
            if(e.getId()==id) return e;
        }
        return null;
    }
    public String delEmployee(int id){
        for(Employee e:emp){
            if(e.getId()==id){
                emp.remove(e);
                return "Deletion Successful";
            }
        }
        return null;
    }
}
```

//EmployeeRequest

```
package com.bootcamp.demo.employee;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.validation.annotation.Validated;
import org.springframework.web.bind.annotation.*;
import org.springframework.web.client.HttpClientErrorException;
import org.springframework.web.servlet.support.ServletUriComponentsBuilder;

import javax.validation.Valid;
import java.net.URI;
import java.util.List;

@RestController
public class EmployeeRequest {

    @Autowired
    private EmployeeService service;

    @GetMapping(path = "emp")
    public List<Employee> getAll(){
        return service.findAll();
    }

    @GetMapping(path = "emp/{id}")
    public Employee getOne(@PathVariable int id) {
        Employee obj = service.findOne(id);
        if(obj==null){
            throw new EmployeeNotFoundException("id : "+id);
        }
        return obj;
    }

    @PostMapping(path = "emp")
    public ResponseEntity<Object> add(@Valid @RequestBody Employee e){
        Employee a= service.empAdd(e);

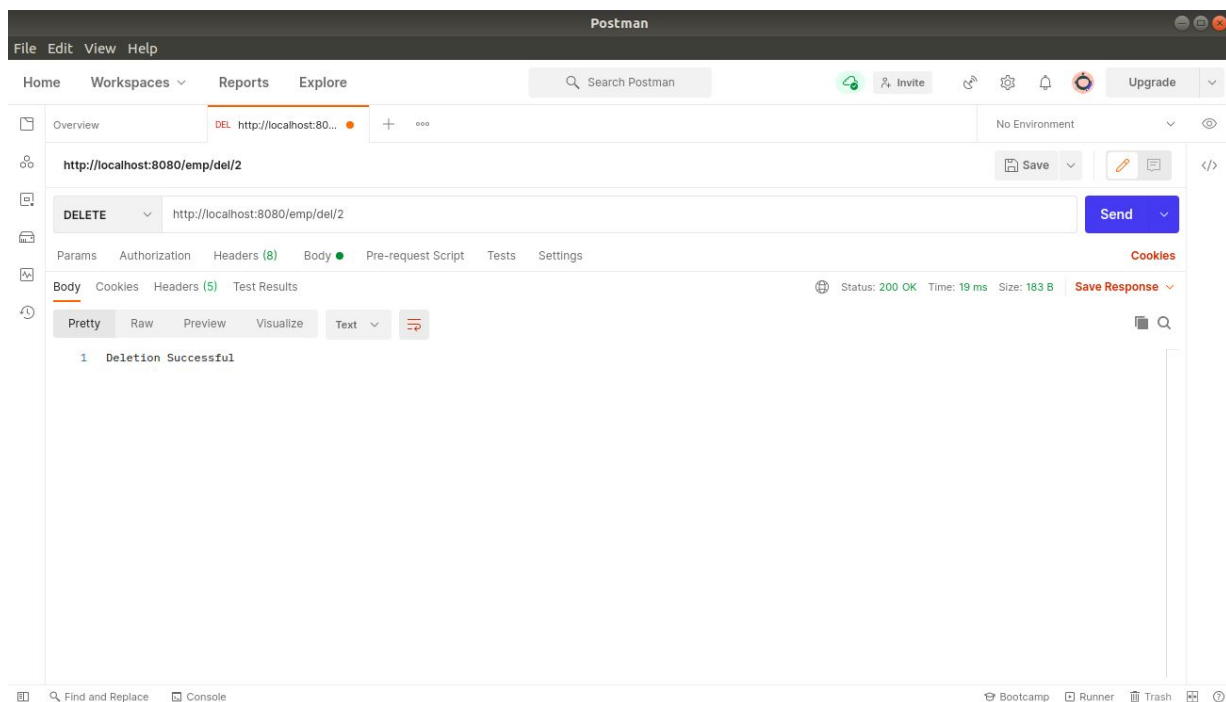
        URI location=
        ServletUriComponentsBuilder.fromCurrentRequest().path("/{id}").buildAndExpand(a.getId()).toUri(
        );

        return ResponseEntity.created(location).build();
    }
}
```

```

}
@DeleteMapping(path="emp/del/{id}")
public String delEmp(@PathVariable int id){
    String s=service.delEmployee(id);
    if(s==null){
        throw new EmployeeNotFoundException("ID : "+id);
    }
    return s;
}
}
}

```



8. Implement PUT http request for Employee to update employee

//EmployeeService

```
package com.bootcamp.demo.employee;

import org.springframework.stereotype.Component;

import java.util.ArrayList;
import java.util.List;

@Component
public class EmployeeService {
    private static List<Employee> emp=new ArrayList<>();

    static {
        emp.add(new Employee(1,23,"Gaurav"));
        emp.add(new Employee(2,33,"Rahul"));
        emp.add(new Employee(3,25,"Megha"));
    }
    public List<Employee> findAll(){
        return emp;
    }
    public Employee empAdd(Employee e){
        emp.add(e);
        return e;
    }
    public Employee findOne(int id){
        for(Employee e:emp){
            if(e.getId()==id) return e;
        }
        return null;
    }
    public String delEmployee(int id){
        for(Employee e:emp){
            if(e.getId()==id){
                emp.remove(e);
                return "Deletion Successful";
            }
        }
        return null;
    }
}
```

```

    public Employee updateEmployeeDetails(Employee employee){
        for(Employee ep1:emp){
            if(ep1.getId() == employee.getId()){
                ep1.setName(employee.getName());
                ep1.setAge(employee.getAge());
                return ep1;
            }
        }
        return null;
    }
}

```

//EmployeeRequest Class

```
package com.bootcamp.demo.employee;
```

```

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.validation.annotation.Validated;
import org.springframework.web.bind.annotation.*;
import org.springframework.web.client.HttpClientErrorException;
import org.springframework.web.servlet.support.ServletUriComponentsBuilder;

```

```

import javax.validation.Valid;
import java.net.URI;
import java.util.List;

```

```
@RestController
```

```
public class EmployeeRequest {
```

```
    @Autowired
```

```
    private EmployeeService service;
```

```
    @GetMapping(path = "emp")
```

```
    public List<Employee> getAll(){
```

```
        return service.findAll();
```

```
    }
```

```
    @GetMapping(path = "emp/{id}")
```

```
    public Employee getOne(@PathVariable int id) {
```

```
        Employee obj = service.findOne(id);
```

```
        if(obj==null){
```

```
            throw new EmployeeNotFoundException("id : "+id);
```

```
        }
```

```
    return obj;
}
```

```
@PostMapping(path = "emp")
public ResponseEntity<Object> add(@Valid @RequestBody Employee e){
    Employee a= service.empAdd(e);
```

```
    URI location=
    ServletUriComponentsBuilder.fromCurrentRequest().path("/{id}").buildAndExpand(a.getId()).toUri(
    );
```

```
    return ResponseEntity.created(location).build();
```

```

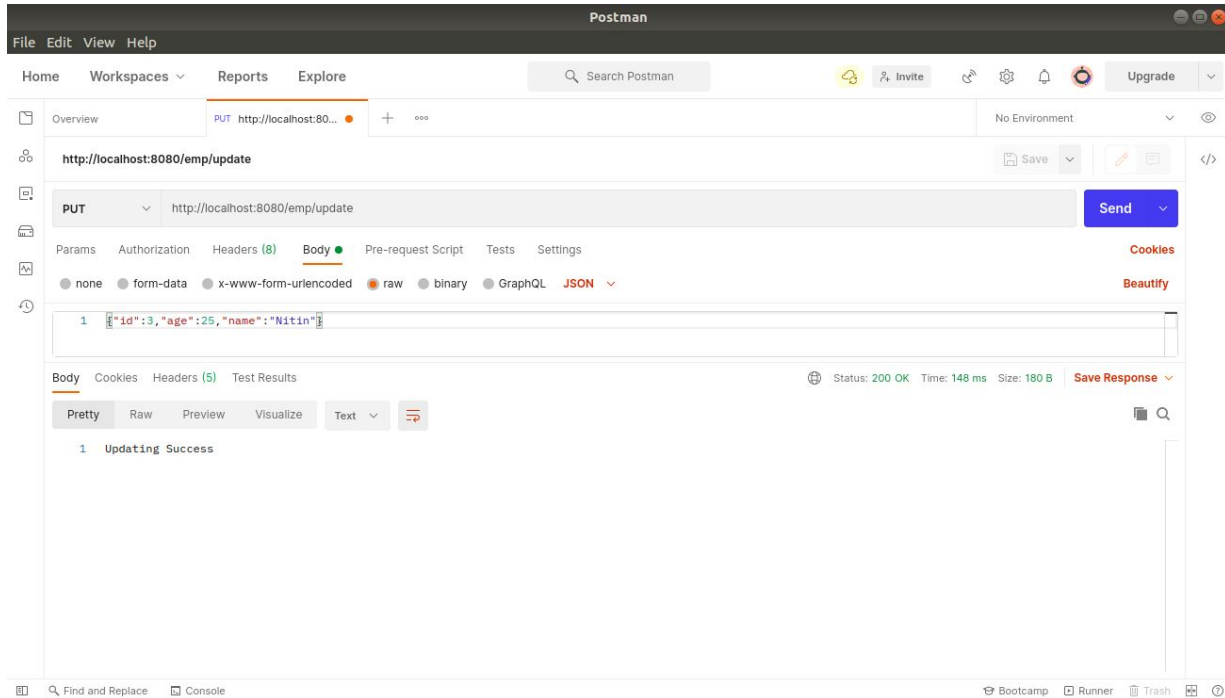
}
@DeleteMapping(path="emp/del/{id}")
public String delEmp(@PathVariable int id){
    String s=service.delEmployee(id);
    if(s==null){
        throw new EmployeeNotFoundException("ID : "+id);
    }
    return s;
}
```

```
@PutMapping("emp/update")
public String updateEmployee(@Valid @RequestBody Employee employee) {
    Employee employee1 = service.updateEmployeeDetails(employee);
    if (employee1 == null)
        throw new EmployeeNotFoundException("ID not found : "+employee.getId());
```

```
    return "Updating Success";
```

```
}
```

```
}
```

9. Apply validation while creating a new employee using POST http Request.

//EmployeeRequest Class

```
package com.bootcamp.demo.employee;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.validation.annotation.Validated;
import org.springframework.web.bind.annotation.*;
import org.springframework.web.client.HttpClientErrorException;
import org.springframework.web.servlet.support.ServletUriComponentsBuilder;
```

```
import javax.validation.Valid;
import java.net.URI;
import java.util.List;
```

```
@RestController
public class EmployeeRequest {
    @Autowired
    private EmployeeService service;
```

```
    @GetMapping(path = "emp")
    public List<Employee> getAll(){
        return service.findAll();
    }
}
```

```

@GetMapping(path = "emp/{id}")
public Employee getOne(@PathVariable int id) {
    Employee obj = service.findOne(id);
    if(obj==null){
        throw new EmployeeNotFoundException("id : "+id);
    }
    return obj;
}

@PostMapping(path = "emp")
public ResponseEntity<Object> add(@Valid @RequestBody Employee e){
    Employee a= service.empAdd(e);

    URI location= ServletUriComponentsBuilder
        .fromCurrentRequest()
        .path("/{id}")
        .buildAndExpand(a.getId()).toUri();
    return ResponseEntity.created(location).build();
}

@DeleteMapping(path="emp/del/{id}")
public String delEmp(@PathVariable int id){
    String s=service.delEmployee(id);
    if(s==null){
        throw new EmployeeNotFoundException("ID : "+id);
    }
    return s;
}
}

```

//Employee Class

```

package com.bootcamp.demo.employee;

import javax.validation.constraints.Min;
import javax.validation.constraints.NotNull;
import javax.validation.constraints.Size;

public class Employee {

    @NotNull(message = "ID cannot be null")
    @Min(value=0,message = "ID should be greater than zero")
    private Integer id;

    @Min(value=0,message = "Age should be greater than 0")

```

```
private Integer age;
```

```
@Size(min = 2,message = "Invalid Name ")
```

```
private String name;
```

```
public Integer getId() {  
    return id;  
}
```

```
public void setId(Integer id) {  
    this.id = id;  
}
```

```
public Integer getAge() {  
    return age;  
}
```

```
public void setAge(Integer age) {  
    this.age = age;  
}
```

```
public String getName() {  
    return name;  
}
```

```
public void setName(String name) {  
    this.name = name;  
}
```

```
public Employee(Integer id, Integer age, String name) {  
    this.id = id;  
    this.age = age;  
    this.name = name;  
}  
}
```

Postman

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POST http://localhost:8080/emp

Save

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

1 { "id": 5, "age": 25, "name": "N" }

Body Cookies Headers (4) Test Results

Status: 400 Bad Request Time: 22 ms Size: 5.91 KB Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "timestamp": "2021-03-08T19:49:58.883+00:00",
3   "status": 400,
4   "error": "Bad Request"
5 }
```

Find and Replace Console

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POST http://localhost:8080/emp

Save

Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings

none form-data x-www-form-urlencoded raw binary GraphQL JSON

1 { "id": null, "age": 25, "name": "Nitin" }

Body Cookies Headers (4) Test Results

Status: 400 Bad Request Time: 15 ms Size: 5.86 KB Save Response

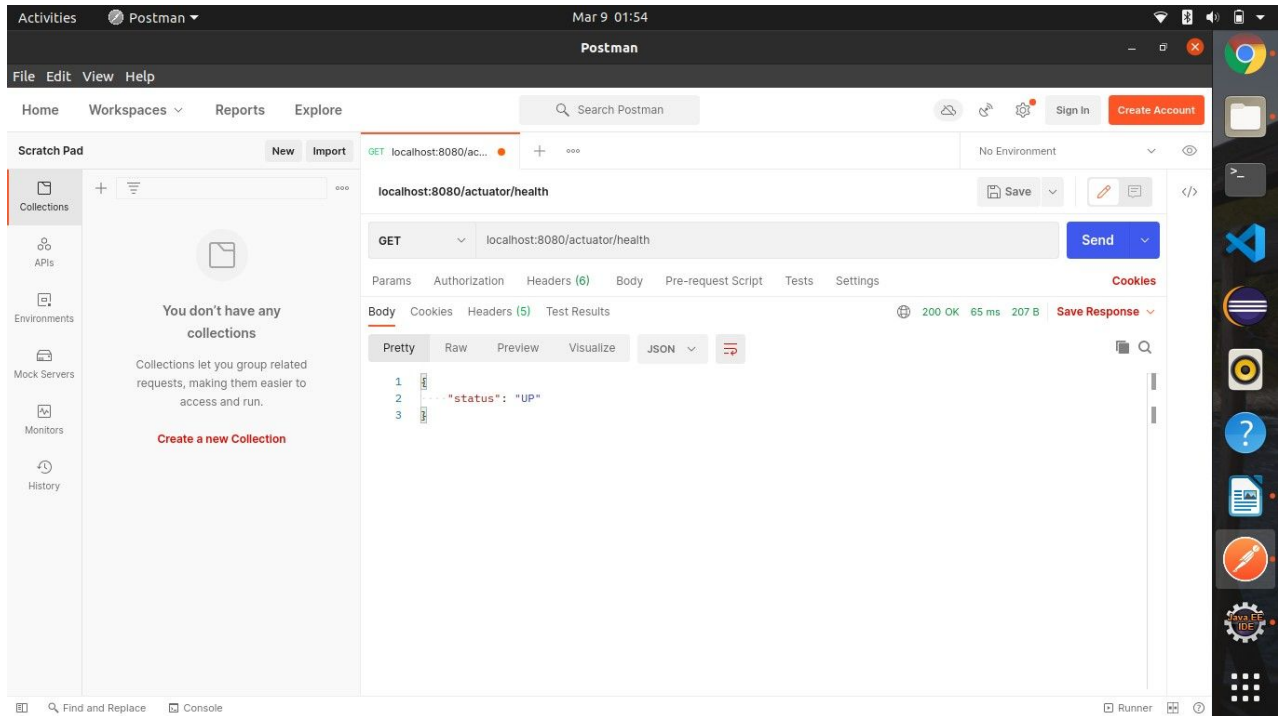
Pretty Raw Preview Visualize JSON

```
22   "defaultMessage": "id",
23   "code": "id"
24 }
25 ],
26 "defaultMessage": "ID cannot be null",
27 "objectName": "employee",
28 "field": "id",
29 "rejectedValue": null,
30 "bindingFailure": false,
31 "code": "NotNull"
32 }
33 ],
34 "path": "/emp"
35 }
```

Find and Replace Console

Bootcamp Runner Trash

10. Configure actuator in your project to check the health of application and get the information about various beans configured in your application



```
<dependency>
```

```
<groupId>org.springframework.boot</groupId>
```

```
<artifactId>spring-boot-starter-actuator</artifactId>
```

```
<version>2.3.1.RELEASE</version>
```

```
</dependency>
```