Introduction:

A simple web api using C# and .NET 5 and swagger for testing, this api contains some HTTP methods to store and retrieve data about Topology in the memory (without using database), this api contains 4 get requests and 2 POST requests and 1 DELETE request.

## Methods:

## 1. GetAllTopologies

Returns all the topologies that exist in the memory

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | https://localhost:5001/Toplogy/Get All Topologies |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be a list of topologies that exist in the memory.**  Example response:-  [  {  "id": "string",  "components": [  {  "type": "string",  "id": "string",  "component": {  "defualt": 0,  "min": 0,  "max": 0  },  "netlist": {“string” : “string”}  }  ]  }  ] |

## 2. GetTopology

This method returns certain topology by using its ID

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | https://localhost:5001/Toplogy/Get Toplogystring |

|  |  |
| --- | --- |
| **Parameters** | **Values** |
| topologyID | string |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be an object of the wanted topology.**  Example response:-  {  "type": "resistor",  "id": "res",  "component": {  "defualt": 10,  "min": 330,  "max": 220  },  "netlist": {  “vs” : “t2”  }  } |
| 404 | {"error":"There is no such Topology"} |

## 3. GetAllDevicesInTopo

This method returns all devices that exist in a certain topology..

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | https://localhost:5001/Toplogy/Get Topolgy's Devices with ID |

|  |  |
| --- | --- |
| **Parameters** | **Values** |
| topologyID | string |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be a list that contains all devices in a certain topology (list of component).**  Example response:-  [  {  "defualt": 0,  "min": 0,  "max": 0  }  ] |
| 404 | {"error":"There is no such Topology."} |

## 4. GetDeviceWithNetList

This method returns a netlist of a given device

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **GET** | https://localhost:5001/Toplogy/Get Connected Devices with NetList |

|  |  |
| --- | --- |
| **Parameters** | **Values** |
| topologyID | string |
| netlistID | string |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be a map <string, dynamic> that indicates the netlist of the given device.**  Example response:-  {  “t1”:”vdd,  “t2” : “ n1”  } |
| 404 | {"error":"There is no such topology."} |
| 404 | {"error":"There is no such device."} |

## 

## 5. AddTopology

This method returns the topology which was added.

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **POST** | https://localhost:5001/Toplogy |

|  |  |
| --- | --- |
| **Parameters** | **Values** |
| topology | Topology |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be an object of the topology that was added.**  Example response:-  {  "type": "resistor",  "id": "res",  "component": {  "defualt": 10,  "min": 330,  "max": 220  },  "netlist": {  “vs” : “t2”  }  } |
| 404 | {"error":"This Topology already exists!,So Add your Data on it"} |

## 6.AddComponentInTopology

This method returns the component which was added.

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **POST** | https://localhost:5001/Toplogy/Add Component in Topolgy |

|  |  |
| --- | --- |
| **Parameters** | **Values** |
| topologyID | string |
| component | Components |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be an object of the component that was added.**  Example response:-  {  "type": "resistor",  "id": "res",  "component": {  "defualt": 10,  "min": 330,  "max": 220  },  "netlist": {  “vs” : “t2”  }  } |
| 404 | {"error":"There is no such Topology!"} |

## 7. DeleteTopology

This method returns the topology which was deleted.

## Request

|  |  |
| --- | --- |
| **Method** | **URL** |
| **DELETE** | https://localhost:5001/Toplogy?id=top1 |

|  |  |
| --- | --- |
| **Parameters** | **Values** |
| topology | Topology |

## Response

|  |  |
| --- | --- |
| **Status** | **Response** |
| 200 | **The response will be an object of the topology that was added.**  Example response:-  {  "type": "resistor",  "id": "res",  "component": {  "defualt": 10,  "min": 330,  "max": 220  },  "netlist": {  “vs” : “t2”  }  } |
| 404 | {"error":"There is no such Topology!"} |