Laporan Tugas Kecil 3 IF2211 Strategi Algoritma

Semester 2 Tahun 2020/2021

Implementasi Algoritma A* untuk Menentukan Lintasan Terpendek

Disusun Oleh :
Hafid Abi Daniswara (13519028)
Syamil Cholid Abdurrasyid (13519052)

A. KODE PROGRAM

// tesclass.js //

```
class Nodee {
    constructor(value,lat,long){
        this.value = value.trim();
        this.long = long
        this.lat = lat
        this.numOfFriend = 0;
        this.friends = [];
    }
    addFriend(value, lat, long){
        if (!this.isFriend(value)){
            this.friends.push({
                value : value,
                jarak : this.getHaversine({lat : this.lat, long: this.long},{lat: lat, long: long})
            });
            this.numOfFriend++;
        }
    }
    isFriend(value){
        if (this.searchFriend(value) != -1){
            return true;
        }
        else return false;
    }
    searchFriend(value){
        for (let i = 0; i < this.numOfFriend; i++){
            if (this.friends[i].value == value) return i;
        }
        return -1;
    }
    getWeight(value){
        if (this.isFriend(value)){
            return this.friends[this.searchFriend(value)].jarak;
        }
        else return -1;
```

```
    }
    getHaversine(koordinat1, koordinat2){
        //KOORDINAT1 & KOORDINAT2 DALAM FROMAT
        /**
         * {
         * lat : 1.234,
         * long : 1.123
         * }
         */
        let x1 = koordinat2.lat -koordinat1.lat;
        let dLat = x1 *Math.PI /180;
        let x2 = koordinat2.long -koordinat1.long;
        let dLong = x2 * Math.PI/180;
        let temp1 = (Math.sin(dLat/2) * Math.sin(dLat/2)) + (Math.cos(koordinat1.lat *Math.PI /180) *
        Math.cos(koordinat2.lat * Math.PI /180) * Math.sin(dLong/2) * Math.sin(dLong/2));
        let temp2 = 2* Math.atan2(Math.sqrt(temp1), Math.sqrt(1-temp1));
        return temp2*6371000;
    }
    deleteFriend(val){
        let newf = []
        this.friends.forEach((i)=>{
            if(i.value!=val){
                newf.push(i)
            }
        })
        this.numOfFriend--;
        this.friends = newf
    }
};
```

```
class Graph {
    constructor(){
        this.nodes = [];
        this.numOfNodes = 0;
    }
    isExist(val){
        if (this.searchNode(val) != -1) return true;
        else return false;
    }
    searchNode(val){
        for (let i = 0; i < this.numOfNodes; i++){
            if (this.nodes[i].value === val) return i;
        }
        return -1;
    }
    addNode(val, nodeLat, nodeLong){
        if (!this.isExist(val)){
            let newNode = new Node(val, nodeLat, nodeLong)
            this.nodes.push(newNode)
            this.numOfNodes++;
        }
    }
    addFriend(nodeId, friendId){
        if(this.isExist(nodeId) && this.isExist(friendId)){
            let i = this.searchNode(nodeId)
            let j = this.searchNode(friendId)
            this.nodes[i].addFriend(this.nodes[j].value, this.nodes[j].lat, this.nodes[j].long)
        }
    }
    getNodebyValue(val){
        return this.nodes[this.searchNode(val)];
    }
```

```
    getNodebyIndex(index){
        if(index>=0 && index<this.numOfNodes){
            return this.nodes[index]
        }
        return 0
    }
    getHeuristicArray(dest){
        let res = []
        if(this.isExist(dest)){
            let dnode = this.getNodebyValue(dest)
            this.nodes.forEach((node)=>{
                res.push(this.getHaversine({lat:node.lat,long:node.long},{lat:dnode.lat,long:dnode.long}))
            })
        }
        return res
    }
    getHaversine(koordinat1, koordinat2){
        //KOORDINAT1 & KOORDINAT2 DALAM FROMAT
        /**
         * {
         * lat : 1.234,
         * long : 1.123
         * }
         */
        let x1 = koordinat2.lat -koordinat1.lat
        let dLat = x1 *Math.PI /180
        let x2 = koordinat2.long -koordinat1.long
        let dLong = x2 * Math.PI/180
        let temp1 = (Math.sin(dLat/2) * Math.sin(dLat/2)) + (Math.cos(koordinat1.lat *Math.PI /180) * Math.cos(koordinat2.lat * Math.PI /180) *
        let temp2 = 2* Math.atan2(Math.sqrt(temp1), Math.sqrt(1-temp1))
        return temp2*6371000
    }
```

```
    getLineOneAnother(){
        let res = []
        for (let x=0;x<this.numOfNodes;x++){
            for(let y=1;y<this.numOfNodes ; y++){
                const n1 = this.getNodebyIndex(x)
                const n2 = this.getNodebyIndex(y)
                const dist = this.getHaversine({lat: n1.lat, long:n1.long},{lat: n2.lat, long:n2.long}).toFixed(2)
                if(n1.isFriend(n2.value)){
                    res.push({
                        'type' : 'Feature',
                        'geometry' : {
                            'type' : 'LineString',
                            'coordinates' : [
                                [n1.long, n1.lat],
                                [n2.long, n2.lat]
                            ]
                        },
                        "properties" : {
                            "title" : dist+" m"
                        }
                    })
                }
            }
        }
        return res
    }
};
```

// tucil2.js //

```
mapboxgl.accessToken = 'pk.eyJ1IjoiaGFmaWRhYmkiLCJhIjoiY2tuNXZ2N25uMDg1MjJyczlna3VndmFmNSJ9.VKoc34AfkqZ5uUUODIUBVA'
let dept = ""
let dest = ""
let myGraf = new Graph()
let directionAddedFlag = false
let myMap
```

```
function bacaTxt(result){
    let temp = []
    temp.push.apply(temp,result.split('\n'));
    if(!isNaN(temp[0]) && temp.length == (2*Number(temp[0]))+1){
        let nNode = Number(temp[0])

        let i
        for(i=1; i<=nNode; i++){
            let nodeTemp = temp[i].split(" ")
            myGraf.addNode(String(nodeTemp[2]),nodeTemp[0],nodeTemp[1])
        }
        for(i=1+nNode;i<=2*nNode;i++){
            const t = temp[i].split(' ')
            if(t.length!=nNode) throw "Matriks ketetanggaan harus matriks persegi"
            let counter = 0
            t.forEach((isFriend)=>{
                if(isNaN(isFriend) || !(Number(isFriend)<=1 && Number(isFriend)>=0)){
                    throw "Matriks hanya bisa 0 atau 1 saja"
                }
                if(Number(isFriend)==1){
                    myGraf.addFriend(myGraf.getNodebyIndex(i-1-nNode).value, myGraf.getNodebyIndex(counter).value)
                }
                counter++
            })
        }
        setComboBox()
        muatPeta2()
        //document.getElementById("output").textContent = "ACC"
    }else{
        throw "Error. Cek format testcase sesuai dengan readme!"
    }
    console.log(myGraf)
}
```

Activate Win
Go to Settings to

```
function klik(){
    if(dept===dest){
        document.getElementById("output").textContent = "Departure dan destination tidak boleh sama!"
    }else{
        try{
            haha = a_star(dept,dest)
            setDirectionOnMap(haha.rute)
            document.getElementById("output").innerHTML = haha.rute.join(" -> ") +"<br>Jarak total = "+haha.totalJarak + " meter"
        }catch(err){
            document.getElementById("output").textContent = err
        }
    }
}
```

```
function muatPeta2(){
    myMap = new mapboxgl.Map(
        {
            container : 'googleMap',
            style: 'mapbox://styles/mapbox/streets-v9', // style URL
            center: [Number(myGraf.nodes[0].long),Number(myGraf.nodes[0].lat)], // starting position as [lng, lat]
            zoom: 14
        }
    )

    let lokasi = {
        'type' : 'FeatureCollection',
        'features' : []
    }
    for(let i =0; i<myGraf.nodes.length;i++){
        const myNode = myGraf.getNodebyIndex(i)
        lokasi.features.push(
            {
                'type': 'Feature',
                'properties': {
                'description': myNode.value,
                },
                'geometry': {
                'type': 'Point',
                'coordinates': [myNode.long, myNode.lat]
                }
            }
        )
    }
```

```
    myMap.on('load',function(){
        const mapLine = myGraf.getLineOneAnother()
        let counter = 1
        mapLine.forEach((dataKoordinat) => {
            const n = 'garis'+counter
            myMap.addSource(n, {
                'type' : 'geojson',
                'data' : dataKoordinat
            })

            myMap.addLayer({
                'id': n,
                'type': 'line',
                'source': n,
                'layout': {
                    'line-join': 'round',
                    'line-cap': 'round',
                },
                'paint': {
                    'line-color': '#888',
                    'line-width': 3
                }
            })
```

```
        myMap.addLayer({
            'id': n,
            'type': 'line',
            'source': n,
            'layout': {
                'line-join': 'round',
                'line-cap': 'round',
            },
            'paint': {
                'line-color': '#888',
                'line-width': 3
            }
        })

        myMap.addLayer({
            "id": "jarak2titik-"+counter,
            "type": "symbol",
            "source": n,
            "layout": {
              "symbol-placement": "line-center",
              "text-font": ["Open Sans Regular"],
              "text-field": '{title}',
              "text-size": 13,
              "text-rotate": -4,
              "symbol-spacing": 1,
            },
            "paint":{
              "text-translate":[0,-40],
            }
          })
        counter++
    })
```

```
        myMap.addSource('directions',{
            'type' : 'geojson',
            'data' : {
                'type' : 'Feature',
                'geometry' :{
                    'type' :'LineString',
                    'coordinates' : []
                } ,

            }
        })

        myMap.addLayer({
            'id': 'directions',
            'source': 'directions',
            'type': 'line',
            'paint': {
                'line-width': 4,
                'line-color': '#f013b1'
            }
        })

        myMap.addSource('places', {
            'type': 'geojson',
            'data': lokasi
            });
```

```
        myMap.addLayer({
            'id': 'poi-labels',
            'type': 'symbol',
            'source': 'places',
            'layout': {
                'text-field': ['get', 'description'],
                'text-variable-anchor': ['top', 'bottom', 'left', 'right'],
                'text-radial-offset': 0.5,
                'text-justify': 'auto',
                'icon-image': ['concat', ['get', 'icon'], '-15']
            },
            'paint' : {
                'text-color' : '#556fe0'
            }
        });
    })



}
```

```
function setComboBox(){
    let depature = '<option value="0">Select Depature Point</option>'
    let i
    for(i=0;i<myGraf.nodes.length;i++){
        depature = depature + '<option value="'+myGraf.nodes[i].value+'">'+ myGraf.nodes[i].value +'</option>'
    }
    document.getElementById("depatureNode").innerHTML = depature
}

function setDirectionOnMap(listOfPassedNodes, start, end){
    let dir = {
        'type' : 'Feature',
        'geometry' :{
            'type' :'LineString',
            'coordinates' : []
        }
    }

    listOfPassedNodes.forEach((node)=>{
        dir.geometry.coordinates.push(
            [myGraf.getNodebyValue(node).long,myGraf.getNodebyValue(node).lat]
        )
    })
    myMap.getSource('directions').setData(dir)
}
```

```
document.getElementById("depatureNode").addEventListener("change",function(){
    document.getElementById("destinationNode").innerHTML = ""
    if(this.value!='0'){
        dept = String(this.value).replace('\n','').trim()
        dest = ""
        let destination = '<option value="0">Select Destination</option>'
        for(let i=0;i<myGraf.nodes.length;i++){
            if(dept!=(myGraf.nodes[i].value.trim())!=0){
                destination = destination + '<option value="'+myGraf.nodes[i].value+'">'+myGraf.nodes[i].value+'</option>'
            }
        }
        document.getElementById("destinationNode").innerHTML = destination
        document.getElementById("daftarHeuristik").innerHTML = ""
        document.getElementById("tujuanSaya").textContent = "-"
    }
},false)
```

```
document.getElementById("destinationNode").addEventListener("change",function(){
    if(this.value!='0'){
        dest = String(this.value).replace('\n','').trim()
        let tmp = ""
        const heuristikObj = myGraf.getHeuristicArray(dest)
        const listPoint = Object.keys(heuristikObj)
        listPoint.forEach((poin)=>{
            tmp = tmp + "<tr>" + "<td>" + poin+ "</td>" + "<td>" + heuristikObj[poin].toFixed(2) + "</td>" + "</tr>"
        })
        document.getElementById("daftarHeuristik").innerHTML = tmp
        document.getElementById("tujuanSaya").textContent = dest
    }
},false)

document.getElementById('inputfile').addEventListener('change', function()
    {
        const fr=new FileReader();
        dept = ""
        dest = ""
        fr.onload=  () => {
            try{
                bacaTxt(fr.result)
            }catch(err){
                document.getElementById("output").textContent = err
            }
        };
        fr.readAsText(this.files[0]);

})
```

```
/**
 *
 * @param {string} start
 * @param {string} destination
 */
function a_star(start,destination){
    let heuristik = myGraf.getHeuristicArray(destination)
    if((myGraf.isExist(start)&&myGraf.isExist(destination))==false) throw "titik start/destination tidak terdefinisi"
    let rute = [start]
    let banned = []
    let fail = false

    let c = 0
    while(!fail && !rute.includes(destination)){
        let temp = a_star_helper1(rute,banned,rute[rute.length-1],heuristik)
        rute = temp.rute
        banned = temp.banned
        if(rute.length==0){
            fail = true
        }

        //PENGAMAN DARI INFINITIE LOOPING
        c++
        if(c>myGraf.numOfNodes*2){fail=true}
    }

    if(fail) throw "tidak dapat dilakukan A*"
    else return{
        'start' : start,
        'destination' : destination,
        'rute' :   rute,
        'totalJarak' : sumJarak(rute)
    }

}
```

```
/**
 *
 * @param {Array} rute
 * @param {Array} banned
 * @param {string} currNode
 */
function a_star_helper1(rute, banned,currNode, heuristik){
    let cnode = myGraf.getNodebyValue(currNode)
    let candidates = []
    cnode.friends.forEach((f)=>{
        if(!(rute.includes(f.value) || banned.includes(f.value))){
            candidates.push(f)
        }
    })
    if(candidates.length>0){
        let nextNode = candidates[0]
        for(let x=1;x<candidates.length;x++){
            let cName = candidates[x].value
            let cJarak = candidates[x].jarak
            if(cJarak + heuristik[cName] < nextNode.jarak + heuristik[nextNode.value]){
                nextNode = candidates[x]
            }
        }
        rute.push(nextNode.value)
        return {
            'rute' : rute,
            'banned' : banned
        }
    }else{
        rute = deleteArray(rute,rute[rute.length-1])
        banned.push(currNode)
        return{
            'rute' : rute,
            'banned' : banned
        }
    }
}
```

```
/**
 *
 * @param {Array} oldArray
 * @param {*} key
 */
function deleteArray(oldArray, key){
    let newArray = []
    oldArray.forEach((i)=>{
        if(i!=key){
            newArray.push(i)
        }
    })
    return newArray
}

/**
 *
 * @param {Array} rute
 */
function sumJarak(rute){
    let s = 0
    for(let x=1;x<rute.length;x++){
        let pa = myGraf.getNodebyValue(rute[x])
        let pb = myGraf.getNodebyValue(rute[x-1])
        s = s + myGraf.getHaversine({lat:pa.lat , long :pa.long},{lat: pb.lat, long :pb.long})
    }
    return s
}
```

// index.html //

```
<!DOCTYPE html>
<html>

<head>
    <title>Tucil 3 stima: Algoritma A*</title>
    <meta content="text/html;charset=utf-8" http-equiv="Content-Type">
    <meta content="utf-8" http-equiv="encoding">
    <link href="https://api.mapbox.com/mapbox-gl-js/v2.2.0/mapbox-gl.css" rel="stylesheet">
    <script src="https://api.mapbox.com/mapbox-gl-js/v2.2.0/mapbox-gl.js"></script>
    <!-- Latest compiled and minified CSS -->
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

    <!-- jQuery library -->
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

    <!-- Popper JS -->
    <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>

    <!-- Latest compiled JavaScript -->
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>
</head>
```

```
<body style="padding-left: 25px; padding-right: 25px; padding-top: 20px;">
    <div class="row">
        <div class="col-sm-4">
            <div class="row">
                <div class="col-sm-12">
                    <div class="card" style="padding-top: 15px; padding-left: 10px; padding-right: 10px; padding-bottom: 5px;">
                        <h4>Mencari Jalan dengan Algoritma A*</h4>
                        <input type="file" name="inputfile" id="inputfile">
                        <label></label>depature point : </label>
                        <select style="margin-top: 10px;" name = "depatureNode" id = "depatureNode" >
                        </select>
                        <label></label>destination point : </label>
                        <select name = "destinationNode" id = "destinationNode" >
                        </select>
                        <br>
                        <button class = "btn btn-primary" id="tombolEksekusi" type="button" >cari rute terdekat !</button>
                        <br>

                        <br>
                    </div>
                </div>
            </div>
```

```
            <div class="row">
                <div class="col-sm-12">
                    <div class="card" style="margin-top: 24px; ">
                        <div class="card-header">
                            <h6>Hasil A*</h6>
                        </div>
                        <div id="output" class="card-body" style="padding-top: 15px; padding-left: 15px; padding-bottom: 5px; padding-right: 15px;">

                        </div>
                    </div>
                </div>
            </div>
        </div>
        <div class="col-sm-5">
            <div class="card">
                <div id="googleMap" style="width:100%; max-height: 565px; min-height: 450px;"></div>
            </div>
            <div class="card" style="margin-top: 10px; padding: 10px;">
                <h5>Tugas Kecil 3 IF2211</h5>
                <p><strong>Hafid Abi D - 13519028</strong> dan <strong>Syamil Cholid Abdurrasyid - 13519052</strong></p>
            </div>
        </div>
```

```
        <div class="col-sm-5">
            <div class="card">
                <div id="googleMap" style="width:100%; max-height: 565px; min-height: 450px;"></div>
            </div>
            <div class="card" style="margin-top: 10px; padding: 10px;">
                <h5>Tugas Kecil 3 IF2211</h5>
                <p><strong>Hafid Abi D - 13519028</strong> dan <strong>Syamil Cholid Abdurrasyid - 13519052</strong></p>
            </div>
        </div>
        <div class="col-sm-3">
            <div class="card">
                <div class="card-header">
                    <h6>Tabel Heuristik</h6>
                </div>
                <div class="card-body" style="padding:5px; max-height: 450px;overflow: scroll;">
                    <strong>tujuan : </strong>
                    <pre id="tujuanSaya"></pre>
                    <table class="table" style="table-layout: fixed; width: 100%; max-height: 400px;">
                        <thead>
                        <tr>
                            <th scope="col">Node</th>
                            <th scope="col">jarak (meter)</th>
                        </tr>
                        </thead>
                        <tbody id="daftarHeuristik">
                        </tbody>
                    </table>
                </div>
            </div>
        </div>
    </div>
```

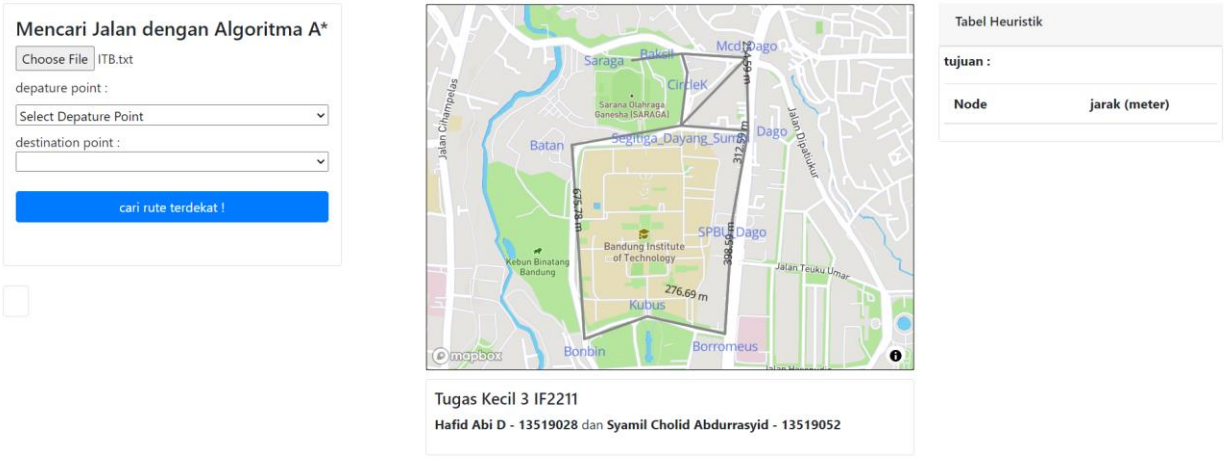
```
    <script type="text/javascript" src="../src/tesclass.js"></script>
    <script type="text/javascript" src="../src/tucil2.js"></script>
</body>

</html>
```

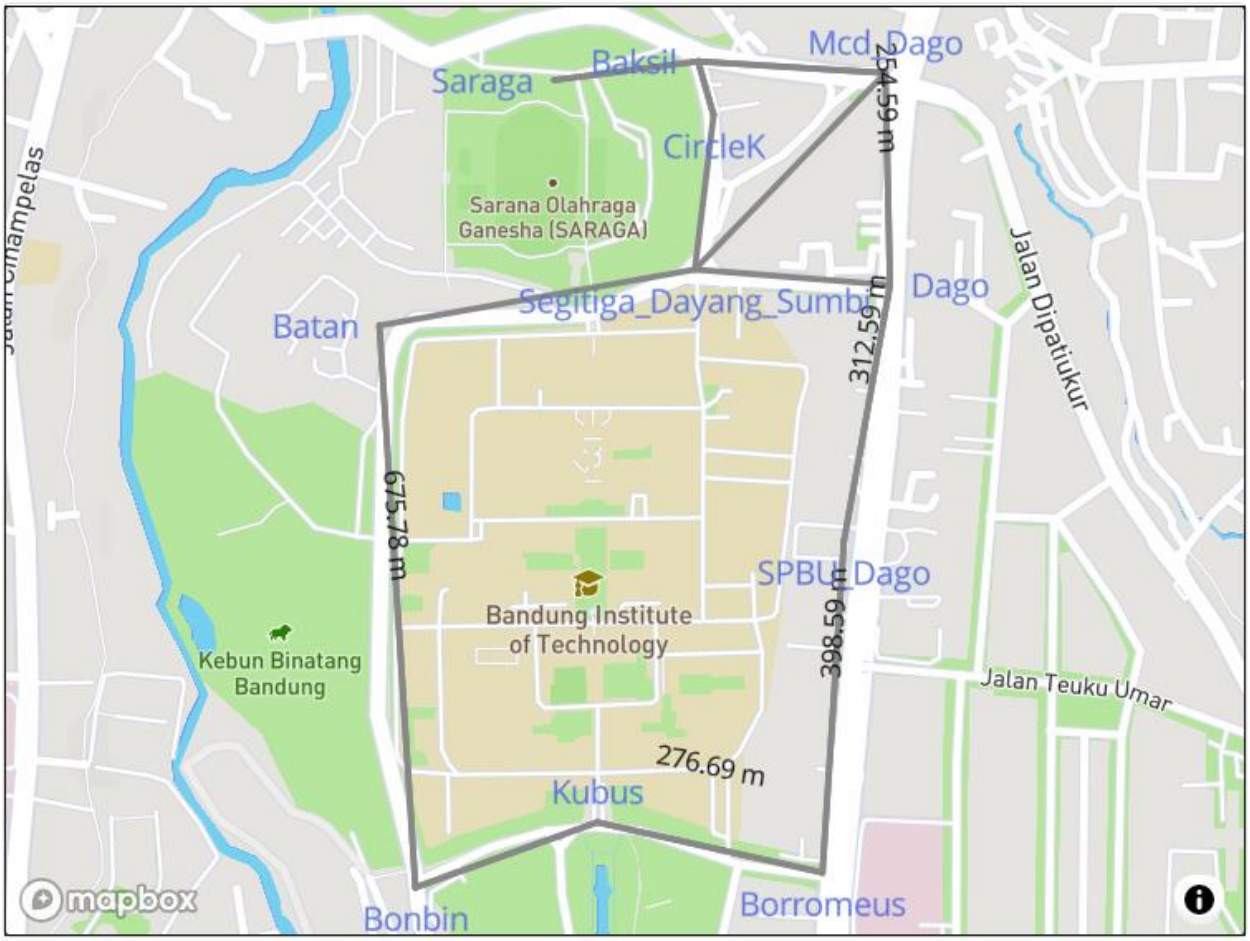
B. PETA/GRAF INPUT

Format graf input :

```
11
-6.887221 107.611479 Segitiga_Dayang_Sumbi
-6.887825 107.608051 Batan
-6.893890 107.608442 Bonbin
-6.893188 107.610418 Kubus
-6.893731 107.612864 Borromeus
-6.885551 107.611683 CircleK
-6.885098 107.613549 Mcd_Dago
-6.884972 107.611512 Baksil
-6.887387 107.613599 Dago
-6.885175 107.609949 Saraga
-6.890154 107.613099 SPBU_Dago
0 1 0 0 0 1 1 0 1 0 0
1 0 1 0 0 0 0 0 0 0 0
0 1 0 1 0 0 0 0 0 0 0
0 0 1 0 1 0 0 0 0 0 0
0 0 0 1 0 0 0 0 0 0 1
1 0 0 0 0 0 0 1 0 0 0
1 0 0 0 0 0 0 1 1 0 0
0 0 0 0 0 1 1 0 0 1 0
1 0 0 0 0 0 1 0 0 0 1
0 0 0 0 0 0 0 1 0 0 0
0 0 0 0 1 0 0 0 1 0 0
```

Bentuk tampilan :





C. LAMPIRAN

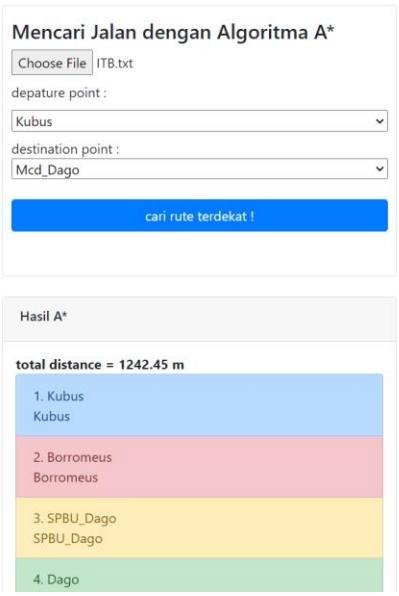
1. Tabel *Checklist*

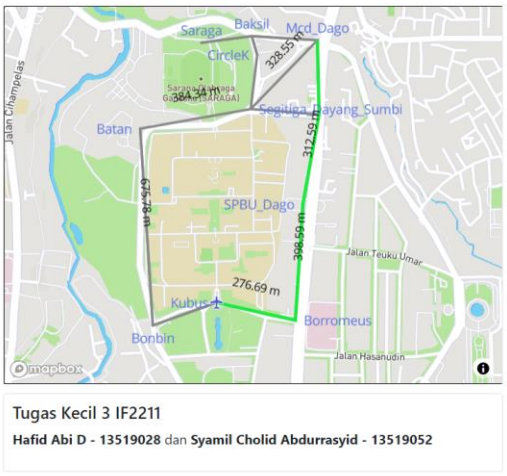
1	Program dapat menerima input graf	
2	Program dapat menghitung lintasan terpendek	
3	Program dapat menampilkan lintasan terpendek serta jaraknya	
4	Bonus: Program dapat menerima input peta dengan Google Map API dan menampilkan peta	

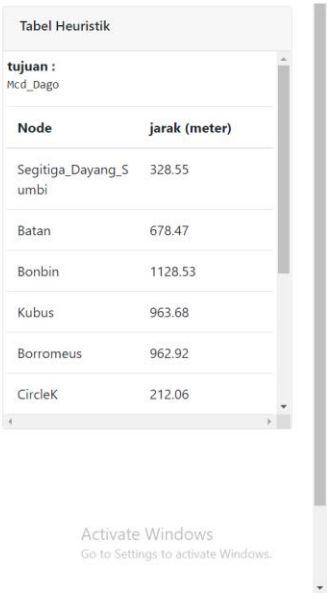
2. Link Drive

https://github.com/syamilca/Tucil3-Stima

3. Hasil Kasus Uji







Mencari Jalan dengan Algoritma A*

Choose File ITB.txt

depature point :

Saraga

destination point :

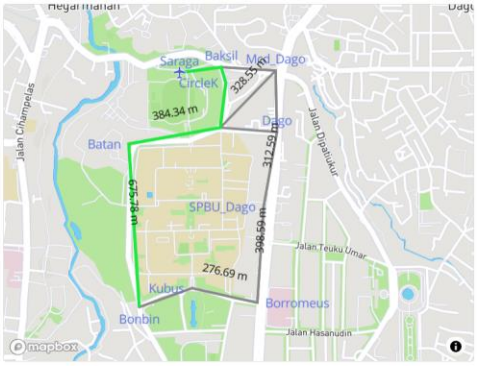
Bonbin

cari rute terdekat !

Hasil A*

total distance = 1488.28 m

1. Saraga
Saraga
2. Baksil
Baksil
3. CircleK
CircleK
4. Segitiga_Dayang_Sumbi



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Bonbin

Node	jarak (meter)
Segitiga_Dayang_Sumbi	813.82
Batan	675.78
Bonbin	0.00
Kubus	231.68
Borromeus	488.47
CircleK	993.89

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File AlunAlunBandung.txt

depature point :

Jln_Braga

destination point :

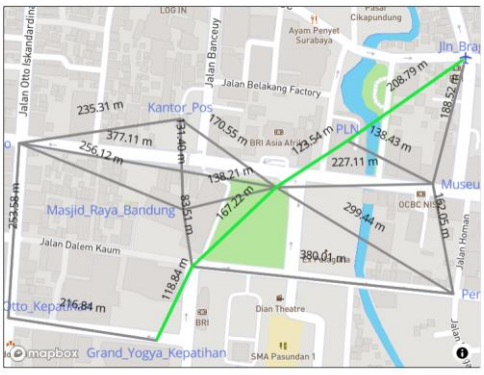
Grand_Yogya_Kepatihan

cari rute terdekat !

Hasil A*

total distance = 618.39 m

1. Jln_Braga
Jln_Braga
2. PLN
PLN
3. Alun_Alun_Bandung
Alun_Alun_Bandung
4. Parahyangan_Plaza



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Grand_Yogya_Kepatihan

Node	jarak (meter)
Alun_Alun_Bandung	281.52
Museum_KAA	460.06
Parahyangan_Plaza	118.84
Masjid_Raya_Bandung	193.42
Perempatan_AA_Otto	347.93

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File AlunAlunBandung.txt

depature point :

Kantor_Pos

destination point :

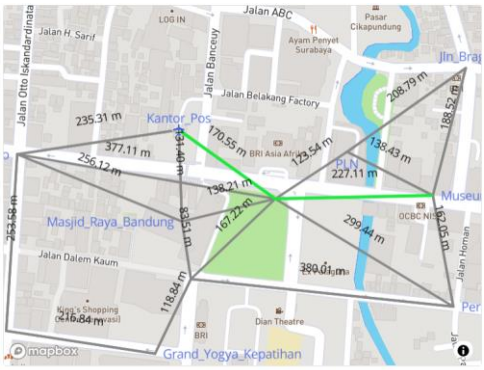
Museum_KAA

cari rute terdekat !

Hasil A*

total distance = 397.66 m

1. Kantor_Pos
Kantor_Pos
2. Alun_Alun_Bandung
Alun_Alun_Bandung
3. Museum_KAA
Museum_KAA



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Museum_KAA

Node	jarak (meter)
Alun_Alun_Bandung	227.11
Museum_KAA	0.00
Parahyangan_Plaza	368.52
Masjid_Raya_Bandung	363.33
Perempatan_AA_Otto	601.62

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File BuahBatu.txt

depature point :

SMAN_21_Bandung

destination point :

Carrefour_Kiaracondong

cari rute terdekat !

Hasil A*

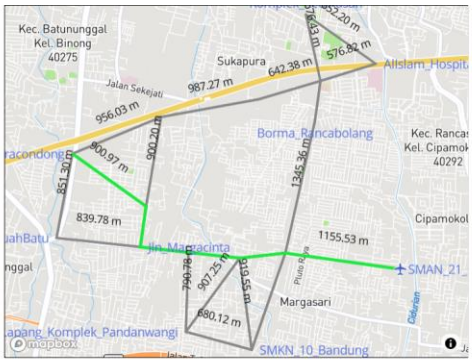
total distance = 3918.92 m

1. SMAN_21_Bandung
SMAN_21_Bandung

2. RSIA_Harapan_Bunda
RSIA_Harapan_Bunda

3. Masjid_Baitussalam_BuahBatu
Masjid_Baitussalam_BuahBatu

4. Borma_Margacinta



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Carrefour_Kiaracondong

Node	jarak (meter)
Komplek_Kedinasan	2705.81
RSIA_Humana_Prima	2574.71
Metro_Indah_Mall	1932.33
Edelweiss_Hospital	956.03
Carrefour_Kiaracondong	0.00

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File BuahBatu.txt

depature point :

Komplek_Kedinasan

destination point :

Masjid_Agung_BuahBatu

cari rute terdekat !

Hasil A*

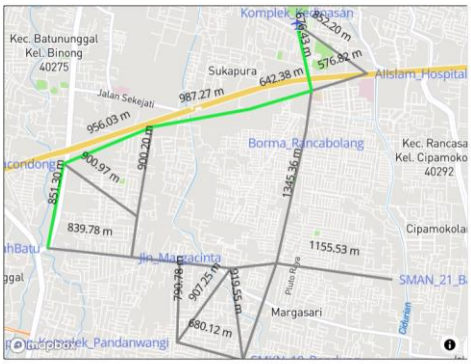
total distance = 4113.40 m

1. Komplek_Kedinasan
Komplek_Kedinasan

2. RSIA_Humana_Prima
RSIA_Humana_Prima

3. Metro_Indah_Mall
Metro_Indah_Mall

4. Edelweiss_Hospital



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Masjid_Agung_BuahBatu

Node	jarak (meter)
Komplek_Kedinasan	3331.08
RSIA_Humana_Prima	3056.93
Metro_Indah_Mall	2439.22
Edelweiss_Hospital	1590.14
Carrefour_Kiaracondong	851.30

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File BuahBatu.txt

depature point :

Masjid_Agung_BuahBatu

destination point :

AlIslam_Hospital

cari rute terdekat !

Hasil A*

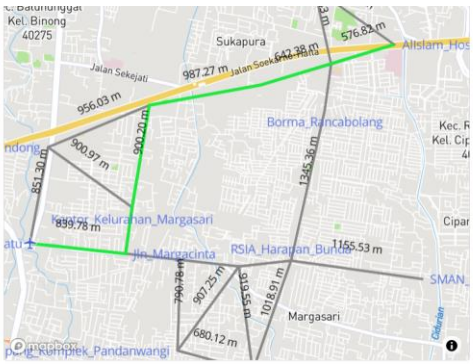
total distance = 4355.87 m

1. Masjid_Agung_BuahBatu
Masjid_Agung_BuahBatu

2. Jln_Margacinta
Jln_Margacinta

3. Kantor_Kelurahan_Margasari
Kantor_Kelurahan_Margasari

4. Edelweiss_Hospital



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
AlIslam_Hospital

Node	jarak (meter)
Komplek_Kedinasan	852.20
RSIA_Humana_Prima	576.82
Metro_Indah_Mall	1219.18
Edelweiss_Hospital	2202.90
Carrefour_Kiaracondong	3151.48

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File KomplekUGM.txt

depature point :

FT_UGM

destination point :

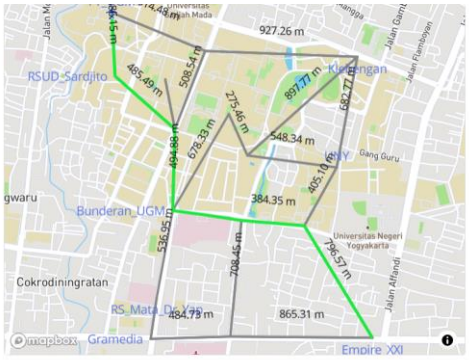
Empire_XXI

cari rute terdekat !

Hasil A*

total distance = 2970.00 m

1. FT_UGM
   FT_UGM
2. RSUD_Sardjito
   RSUD_Sardjito
3. Jln_Persatuan
   Jln_Persatuan



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Empire_XXI

Node	jarak (meter)
Bunderan_UGM	1440.49
UGM_Pusat	1615.24
Masjid_Kampus_UGM	1343.49
Jln_Persatuan	1747.10
RSUD_Sardjito	2231.10
FKKMK_UGM	2012.73

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File KomplekUGM.txt

depature point :

Klebengan

destination point :

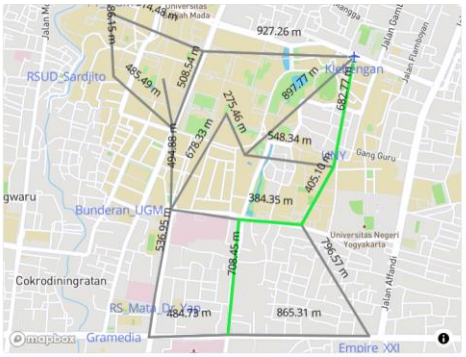
Galeria_Mall

cari rute terdekat !

Hasil A*

total distance = 2180.68 m

1. Klebengan
   Klebengan
2. UNY
   UNY
3. GOR_UNY
   GOR_UNY



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Galeria_Mall

Node	jarak (meter)
Bunderan_UGM	841.32
UGM_Pusat	1350.71
Masjid_Kampus_UGM	1104.30
Jln_Persatuan	1303.93
RSUD_Sardjito	1729.40
FKKMK_UGM	1610.37

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File KomplekUGM.txt

depature point :

FKKMK_UGM

destination point :

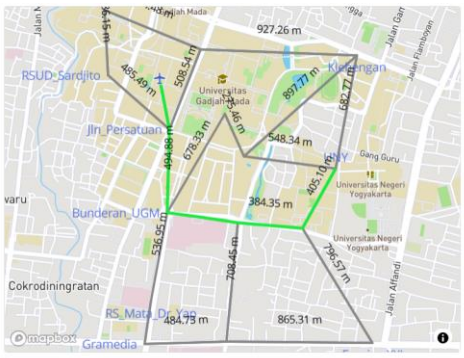
UNY

cari rute terdekat !

Hasil A*

total distance = 2013.95 m

1. FKKMK_UGM
   FKKMK_UGM
2. Jln_Persatuan
   Jln_Persatuan
3. Bunderan_UGM
   Bunderan_UGM



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
UNY

Node	jarak (meter)
Bunderan_UGM	1031.91
UGM_Pusat	731.98
Masjid_Kampus_UGM	548.34
Jln_Persatuan	1012.23
RSUD_Sardjito	1458.47
FKKMK_UGM	1172.34

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File Washington.txt

depature point :

US_Capitol

destination point :

Washington_National_Cathedral

cari rute terdekat !

Hasil A*

total distance = 7216.07 m

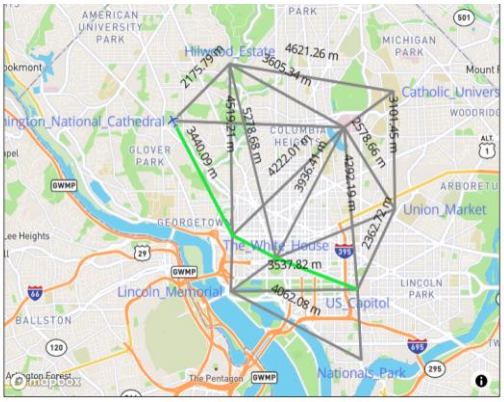
1. US_Capitol

The_White_House => 0.00 + 2420.48 + 4615.83 = 7036.30

Lincoln_Memorial => 0.00 + 3537.82 + 4772.90 = 8310.72

Nationals_Park => 0.00 + 1851.87 + 8194.38 = 10046.26

MedStar_Washington_Hospital => 0.00 + 4292.19 +



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Washington_National_Cathedral

Node	jarak (meter)
The_White_House	4615.83
US_Capitol	6797.58
Washington_Statue	3440.09
Lincoln_Memorial	4772.90
Nationals_Park	8194.38
MedStar_Washington_Hospital	4772.60

Activate Windows
Go to Settings to activate Windows.

Mencari Jalan dengan Algoritma A*

Choose File Paris.txt

depature point :

Arc_de_Triomphe

destination point :

Panthéon

cari rute terdekat !

Hasil A*

total distance = 5247.68 m

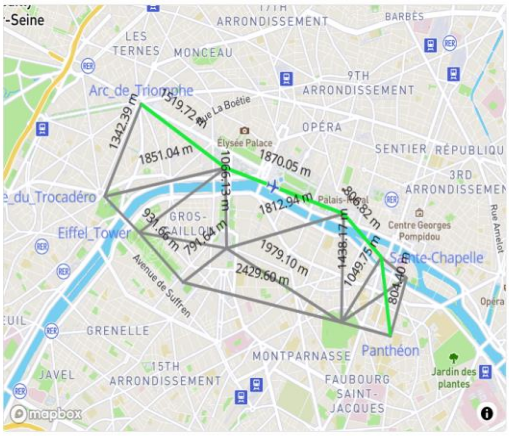
1. Arc_de_Triomphe

Place_du_Trocadéro => 0.00 + 1342.39 + 4663.52 = 6005.91

Grand_Palais => 0.00 + 1519.72 + 3325.04 = 4844.76

2. Grand_Palais

Eiffel_Tower => 1519.72 + 1551.55 + 4006.04 =



Tugas Kecil 3 IF2211

Hafid Abi D - 13519028 dan **Syamil Cholid Abdurrasyid - 13519052**

Tabel Heuristik

tujuan :
Panthéon

Node	jarak (meter)
Eiffel_Tower	4006.04
Place_du_Trocadéro	4663.52
Hôtel_des_Invalides	2715.76
Grand_Palais	3325.04
Musee_du_Louvré	1763.66
École_Militaire	3187.16

Activate Windows
Go to Settings to activate Windows.