

# LAMPIRAN

## ALGORITMA KNN DENGAN BAHASA PEMROGRAMAN PHP

```
<?php

include_once '../config/connection.php';

$fk_user = $_POST['fk_user'];
$umur = $_POST['umur'];
$jenis_kelamin = $_POST['jenis_kelamin'];
$tekanan_darah = $_POST['tekanan_darah'];
$kolesterol = $_POST['kolesterol'];
$denyut_nadi_maksimal = $_POST['denyut_nadi_maksimal'];
$depresi_segmen_st = $_POST['depresi_segmen_st'];
$kemiringan_segmen_st = $_POST['kemiringan_segmen_st'];
$datetime = date("Y-m-d H:i:s");

// Ambil Data Latih
$trainingDataQuery = "SELECT * FROM tb_knn";
$trainingDataResult = mysqli_query($conn, $trainingDataQuery);

$trainingDataFromDatabase = [];
while ($rowData = mysqli_fetch_assoc($trainingDataResult)) {
    $trainingDataFromDatabase[] = $rowData;
}

```

```
// Implementasi KNN
function knn($trainingData, $input, $k)
{
    // Cek input data dan training key apabila key nya sama
    if (count(array_diff(array_keys($input), array_keys($trainingData[0]))) > 0) {
        echo json_encode(['message' => 'GAGAL', 'status' => '0']);
        exit();
    }

    // Hitung jarak input dan setiap data pelatihan
    $distances = [];
    foreach ($trainingData as $data) {
        $distance = 0;
        foreach ($input as $key => $value) {
            $distance += pow(($data[$key] - $value), 2);
        }
        $distances[] = sqrt($distance);
    }

    // Mengurutkan array berdasarkan jarak
    array_multisort($distances, $trainingData);

    // Ambil nilai K dari tetangga terdekat
    $neighbors = array_slice($trainingData, 0, $k);

    // Hitung label yang paling sering muncul di antara tetangga
    $labels = array_column($neighbors, 'diagnosis');
    $predictedLabel = array_count_values($labels);
    arsort($predictedLabel);
    $predictedCondition = key($predictedLabel);

    return $predictedCondition;
}

```

```

// Panggil fungsi KNN
if (!empty($strainingDataFromDatabase)) {
    $inputData = array(
        'umur' => $umur,
        'jenis_kelamin' => $jenis_kelamin,
        'tekanan_darah' => $tekanan_darah,
        'kolesterol' => $kolesterol,
        'denyut_nadi_maksimal' => $denyut_nadi_maksimal,
        'depresi_segmen_st' => $depresi_segmen_st,
        'kemiringan_segmen_st' => $kemiringan_segmen_st
    );
    $kValue = 3;
    $predictedCondition = knn($strainingDataFromDatabase, $inputData, $kValue);

    // Simpan data hasil diagnosa ke database
    $query = "INSERT INTO tb_hasil_diagnosa (fk_user, umur, jenis_kelamin, tekanan_darah, kolesterol, denyut_nadi_maksimal, depresi_segmen_st, kemiringan_segmen_st, kondisi,
    datetime) VALUES ('$fk_user', '$umur', '$jenis_kelamin', '$tekanan_darah', '$kolesterol', '$denyut_nadi_maksimal', '$depresi_segmen_st', '$kemiringan_segmen_st',
    '$predictedCondition', '$datetime')";
    $queryResult = mysqli_query($conn, $query);

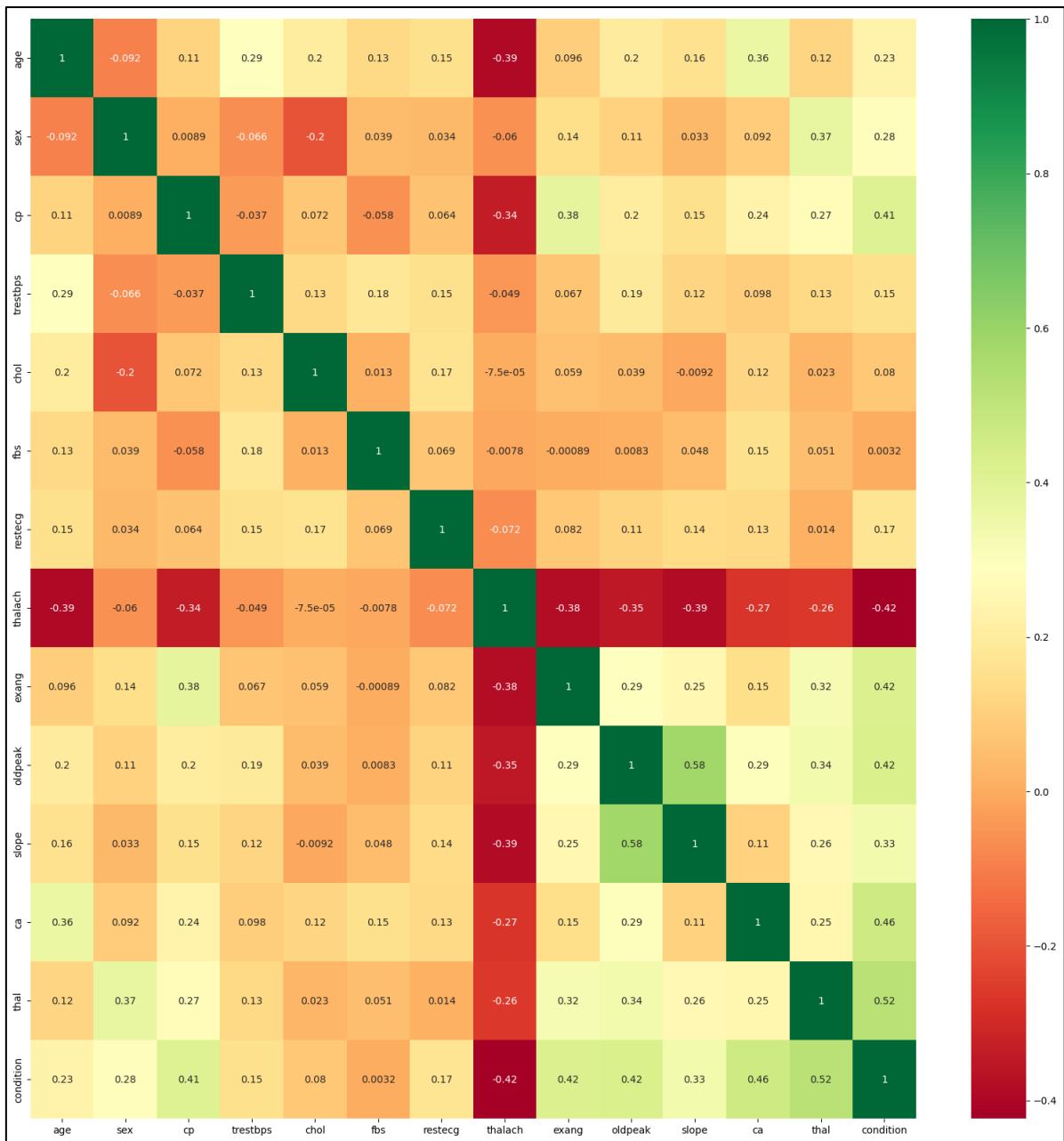
    if ($queryResult) {
        echo json_encode(['message' => 'Data Berhasil Direkam!', 'status' => '1']);
    } else {
        echo json_encode(['message' => 'Gagal Menyimpan Data: ' . mysqli_error($conn), 'status' => '0']);
    }
} else {
    echo json_encode(['message' => 'Operasi KNN Gagal', 'status' => '0']);
}

```

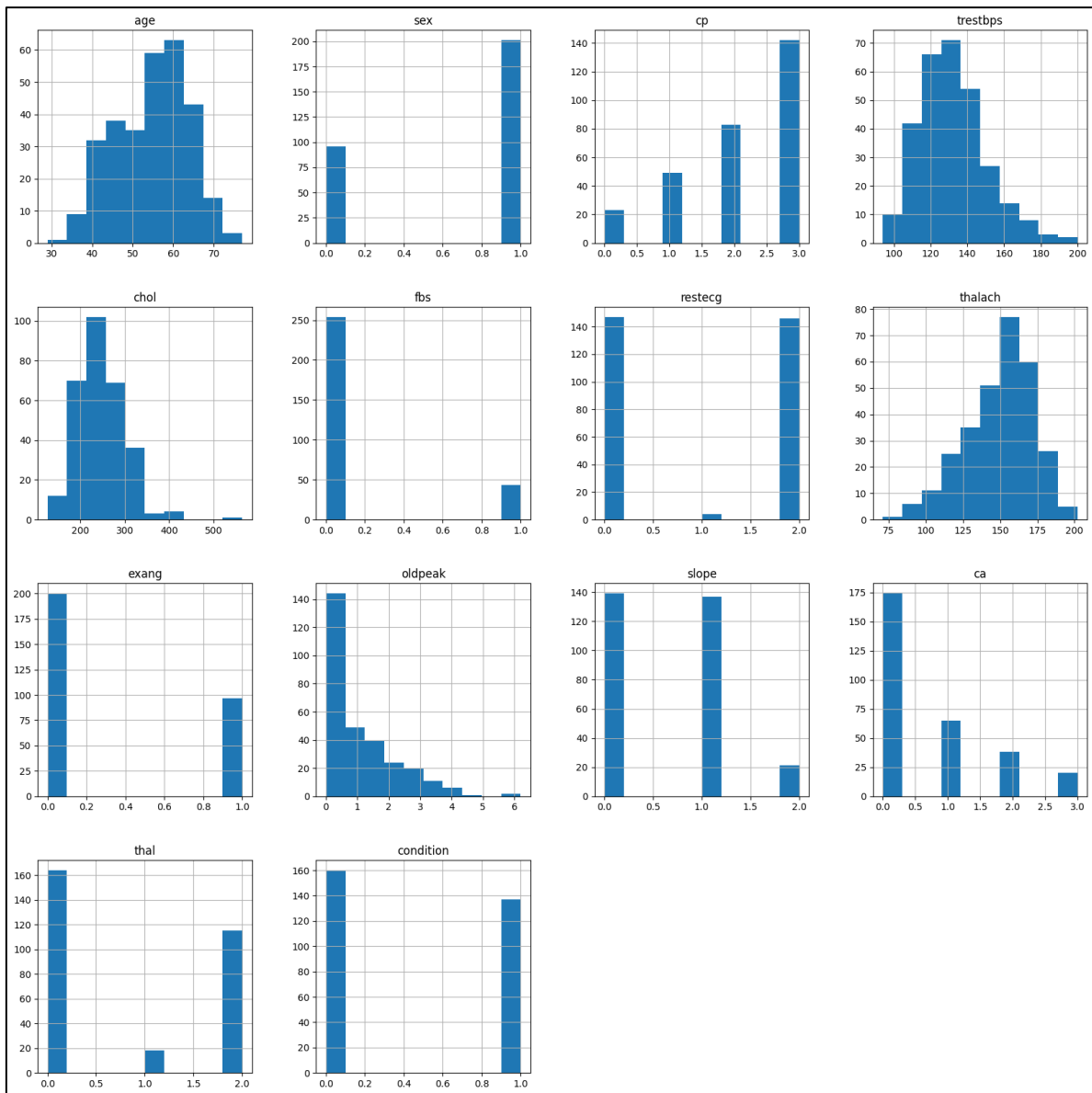
### Data Diagnosa Penyakit Jantung (Sumber: Kaggle)

	A	B	C	D	E	F	G	H				
1	age,sex,cp	trestbps	chol	fbs	restecg	thalach	exang	oldpeak	slope	ca	thal	condition
2	69,1,0	160,234	1,2	131,0	0.1	1,1	0,0					
3	69,0,0	140,239	0,0	151,0	1.8	0,2	0,0					
4	66,0,0	150,226	0,0	114,0	2.6	2,0	0,0					
5	65,1,0	138,282	1,2	174,0	1.4	1,1	0,1					
6	64,1,0	110,211	0,2	144,1	1.8	1,0	0,0					
7	64,1,0	170,227	0,2	155,0	0.6	1,0	2,0					
8	63,1,0	145,233	1,2	150,0	2.3	2,0	1,0					
9	61,1,0	134,234	0,0	145,0	2.6	1,2	0,1					
10	60,0,0	150,240	0,0	171,0	0.9	0,0	0,0					
11	59,1,0	178,270	0,2	145,0	4.2	2,0	2,0					
12	59,1,0	170,288	0,2	159,0	0.2	1,0	2,1					
13	59,1,0	160,273	0,2	125,0	0,0	0,0	1					
14	59,1,0	134,204	0,0	162,0	0.8	0,2	0,1					
15	58,0,0	150,283	1,2	162,0	1,0	0,0	0,0					
16	56,1,0	120,193	0,2	162,0	1.9	1,0	2,0					
17	52,1,0	118,186	0,2	190,0	0,1	0,1	0					
18	52,1,0	152,298	1,0	178,0	1.2	1,0	2,0					
19	51,1,0	125,213	0,2	125,1	1.4	0,1	0,0					
20	45,1,0	110,264	0,0	132,0	1.2	1,0	2,1					
21	42,1,0	148,244	0,2	178,0	0.8	0,2	0,0					
22	40,1,0	140,199	0,0	178,1	1.4	0,0	2,0					
23	38,1,0	120,231	0,0	182,1	3.8	1,0	2,1					
24	34,1,0	118,182	0,2	174,0	0,0	0,0	0,0					
25	74,0,1	120,269	0,2	121,1	0.2	0,1	0,0					
26	71,0,1	160,302	0,0	162,0	0.4	0,2	0,0					
27	70,1,1	156,245	0,2	143,0	0,0	0,0	0,0					
28	66,1,1	160,246	0,0	120,1	0,1	3,1	1					
29	63,0,1	140,195	0,0	179,0	0,0	2,0	0					
30	62,1,1	120,281	0,2	103,0	1.4	1,1	2,1					

## HEATMAP DATA



## SEGMENTASI DATA



**PELABELAN DATA**