

LAMPIRAN

Source Code Halaman Data Nilai

```

<?php

use app\models\DataAwal;
use yii\helpers\Html;
use yii\helpers\Url;
use yii\grid\ActionColumn;
use yii\grid\GridView;
use yii\widgets\ActiveForm;

/** @var yii\web\View $this */
/** @var app\models\search\DataawalSearch $searchModel */
/** @var yii\data\ActiveDataProvider $dataProvider */

$this->title = 'Data Nilai';
?>
<div class="data-awal-index">

    <h1><?= Html::encode($this->title) ?></h1>

    <p>
        <?= Html::a('<i class="fa fa-fw fa-plus-square"></i> Tambah Data',
        ['create'], ['class' => 'btn btn-success']) ?>
        <button class="btn btn-primary" data-toggle="modal" data-
        target="#upload-data"><i class="fa fa-fw fa-upload"></i> Import
        Data</button>
    </p>

    <div class="box box-success"><div class="box-body"><div class="table-
    responsive">
        <?= GridView::widget([
            'dataProvider' => $dataProvider,
            'filterModel' => $searchModel,
            'columns' => [
                'id',
                'nama',
                'tugas_pai',
                'sikap_pai',
                'uts_pai',
                'uas_pai',
                'tugas_ipa',
                'sikap_ipa',
                'uts_ipa',
                'uas_ipa',
                'tugas_ips',
            ],
        ]) ?>
    </div>
</div>
</div>

```

```

'sikap_ips',
'uts_ips',
'uas_ips',
'tugas_mtk',
'sikap_mtk',
'uts_mtk',
'uas_mtk',
'tugas_kmd',
'sikap_kmd',
'uts_kmd',
'uas_kmd',
'tugas_arab',
'sikap_arab',
'uts_arab',
'uas_arab',
'tugas_jawa',
'sikap_jawa',
'uts_jawa',
'uas_jawa',
'tugas_plh',
'sikap_plh',
'uts_plh',
'uas_plh',
'tugas_inggris',
'sikap_inggris',
'uts_inggris',
'uas_inggris',
'tugas_indo',
'sikap_indo',
'uts_indo',
'uas_indo',
'tugas_pkn',
'sikap_pkn',
'uts_pkn',
'uas_pkn',
'tugas_pjok',
'sikap_pjok',
'uts_pjok',
'uas_pjok',
[
  'class' => 'yii\grid\ActionColumn','header'=>'Aksi',
  'template'=>'{update}',
  'buttons' => [
    'update'=>function($url,$model)
    {
      return Html::a('<i class="fa fa-fw fa-pencil"></i> Ubah',
        ['update','id'=>$model->id], ['class' => 'btn btn-xs btn-primary']);
    }
  ]
]

```

```

        },
    ]
    ],
    ],
    }); ?>
</div></div></div>

<div class="modal fade" id="upload-data"><div class="modal-dialog">
  <div class="modal-content">
    <div class="modal-header">
      <button type="button" class="close" data-dismiss="modal" aria-
label="Close">
        <span aria-hidden="true">&times;</span></button>
      <h4 class="modal-title"><b>Import Data</b></h4>
    </div>
    <div class="modal-body">
      <?php $form = ActiveForm::begin([
        'options' => [
          'enctype' => 'multipart/form-data',
        ],
      ]) ?>
      <?= $form->field($model,'import_file')->fileInput() ?>
      <a href="template/import_data_nilai.xlsx">Download
Format</a><br>
      <?= Html::submitButton('Import',['class'=>'btn btn-success']) ?>
      <?php ActiveForm::end() ?>
    </div>
  </div>
</div></div>
</div>

```

Source Code Halaman Proses K-Means

```

<?php

use app\models\ProsesData;
use yii\helpers\Html;
use yii\helpers\Url;
use yii\grid\ActionColumn;
use yii\grid\GridView;

/** @var yii\web\View $this */
/** @var app\models\search\ProsesdataSearch $searchModel */
/** @var yii\data\ActiveDataProvider $dataProvider */

$this->title = 'Proses K-Means';

```

```

$this->params['breadcrumbs'][] = $this->title;
?>
<div class="proses-data-index">

    <h1><?= Html::encode($this->title) ?></h1>

    <p>
        <?= Html::a('<i class="fa fa-fw fa-plus-square"></i> Tambah Proses K-
Means', ['create'], ['class' => 'btn btn-success']) ?>
    </p>

    <?php // echo $this->render('_search', ['model' => $searchModel]); ?>
    <div class="box box-success"><div class="box-body">
    <?= GridView::widget([
        'dataProvider' => $dataProvider,
        'filterModel' => $searchModel,
        'columns' => [
            ['class' => 'yii\grid\SerialColumn'],
            'matpel',
            'jml_cluster',
            [
                'class' => 'yii\grid\ActionColumn', 'header'=>'Aksi',
                'template'=>'{view} {delete}',
                'buttons' => [
                    'view'=>function($url,$model)
                    {
                        return Html::a('<i class="fa fa-fw fa-eye"></i> Detail',
                ['view','id'=>$model->id], ['class' => 'btn btn-xs btn-primary']);
                    },
                    'delete'=>function($url,$model)
                    {
                        return Html::a('<i class="fa fa-fw fa-trash"></i> Delete',
                ['delete','id' => $model->id], [
                            'class' => 'btn btn-xs btn-danger',
                            'data' => [
                                'confirm' => 'Hapus proses ini ?',
                                'method' => 'post',
                            ],
                        ],
                    ],
                ]);
            ]
        ],
    ]);
?>
</div></div>
</div>

```

Source Code Memilih Cluster Awal

```

public function insertFirstcentroid($dataawal_id,$prosesdata_id){
    return Yii::$app->db->createCommand("
        INSERT INTO id_centroid

(jenis,prosesdata_id,dataawal_id,iterasi,centroid,tugas,sikap,uts,uas)
    SELECT
        a.jenis,
        a.prosesdata_id,
        a.dataawal_id,
        a.iterasi,
        a.centroidke,
        a.tugas,
        a.sikap,
        a.uts,
        a.uas
    FROM(
        SELECT
            '1' AS jenis,
            a.prosesdata_id,
            a.dataawal_id,
            a.iterasi,
            IFNULL(b.centroidke,0)+1 AS centroidke,
            a.tugas,
            a.sikap,
            a.uts,
            a.uas
        FROM(
            SELECT
                ".$prosesdata_id." AS prosesdata_id,id AS dataawal_id,'1' AS
iterasi".$kolom."
            FROM id_data_awal
            WHERE id=".$dataawal_id."
        )a
    LEFT JOIN(
        SELECT
            COUNT(a.id) AS centroidke,a.prosesdata_id
        FROM(
            SELECT id,prosesdata_id FROM id_centroid
            WHERE prosesdata_id=".$prosesdata_id."
            GROUP BY prosesdata_id,centroid
        )a
    )b ON b.prosesdata_id=a.prosesdata_id
    )a
    UNION ALL
    SELECT
        a.jenis,

```

```

a.prosesdata_id,
a.dataawal_id,
a.iterasi,
a.centroidke,
a.tugas,
a.sikap,
a.uts,
a.uas
FROM(
SELECT
'2' AS jenis,
a.prosesdata_id,
a.dataawal_id,
a.iterasi,
IFNULL(b.centroidke,0)+1 AS centroidke,
a.tugas,
a.sikap,
a.uts,
a.uas
FROM(
SELECT
".".$prosesdata_id." AS prosesdata_id,id AS dataawal_id,'1' AS
iterasi"$.kolom."
FROM id_data_awal
WHERE id="".$dataawal_id.""
)a
LEFT JOIN(
SELECT
COUNT(a.id) AS centroidke,a.prosesdata_id
FROM(
SELECT id,prosesdata_id FROM id_centroid
WHERE prosesdata_id="".$prosesdata_id.""
GROUP BY prosesdata_id,centroid
)a
)b ON b.prosesdata_id=a.prosesdata_id
)a
UNION ALL
SELECT
a.jenis,
a.prosesdata_id,
a.dataawal_id,
a.iterasi,
a.centroidke,
a.tugas,
a.sikap,
a.uts,
a.uas

```

```

FROM(
  SELECT
    '3' AS jenis,
    a.prosesdata_id,
    a.dataawal_id,
    a.iterasi,
    IFNULL(b.centroidke,0)+1 AS centroidke,
    a.tugas,
    a.sikap,
    a.uts,
    a.uas
  FROM(
    SELECT
      ".$prosesdata_id." AS prosesdata_id,id AS dataawal_id,'1' AS
iterasi".$kolom."
    FROM id_data_awal
    WHERE id=".$dataawal_id."
  )a
  LEFT JOIN(
    SELECT
      COUNT(a.id) AS centroidke,a.prosesdata_id
    FROM(
      SELECT id,prosesdata_id FROM id_centroid
      WHERE prosesdata_id=".$prosesdata_id."
      GROUP BY prosesdata_id,centroid
    )a
  )b ON b.prosesdata_id=a.prosesdata_id
)a
")->execute();
}

```

Source Code Menghitung Jarak Euclidean Distance

```

Yii::$app->db->createCommand("
  INSERT INTO id_jarak_d
  (jenis,prosesdata_id,iterasi,dataawal_id,jarak,centroid_id)
  SELECT
    ".$jenis." AS jenis,
    ".$id." AS prosesdata_id,
    b.iterasi,
    a.id AS dataawal_id,
    ROUND(SQRT(POW(a.tugas-b.tugas,2)+POW(a.sikap-
b.sikap,2)+POW(a.uts-b.uts,2)+POW(a.uas-b.uas,2)),4) AS jarak,
    b.centroid
  FROM(

```

```

SELECT
    id,nama".$kolom."
FROM id_data_awal
)a
JOIN(
    SELECT a.iterasi,a.id AS centroid,a.tugas,a.sikap,a.uts,a.uas FROM
id_centroid a
    INNER JOIN id_proses_data b ON b.id=a.prosesdata_id
    INNER JOIN(
        SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
        WHERE prosesdata_id='".$$.id.'" AND jenis='".$$.jenis.'"
    )c ON c.iterasi_max=a.iterasi
    WHERE b.id='".$$.id.'" AND a.jenis='".$$.jenis.'"
    GROUP BY a.id
    )b
")->execute();

Yii::$app->db->createCommand("
INSERT INTO id_jarak
(jenis,prosesdata_id,iterasi_ke,dataawal_id,jarak_terkecil,centroid_id)
SELECT
    '".$$.jenis.'" AS jenis,
    '".$$.id.'" AS prosesdata_id,
    b.iterasi_max AS iterasi_ke,
    a.dataawal_id,
    a.jarak,
    a.centroid_id
FROM id_jarak_d a
INNER JOIN(
    SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
    WHERE prosesdata_id='".$$.id.'" AND jenis='".$$.jenis.'"
    )b ON b.iterasi_max=a.iterasi
INNER JOIN(
    SELECT
        a.dataawal_id,
        MIN(a.jarak) AS jarak
    FROM id_jarak_d a
    INNER JOIN(
        SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
        WHERE prosesdata_id='".$$.id.'" AND jenis='".$$.jenis.'"
    )b ON b.iterasi_max=a.iterasi
    WHERE a.prosesdata_id='".$$.id.'" AND a.jenis='".$$.jenis.'"
    GROUP BY a.dataawal_id
    )c ON c.dataawal_id=a.dataawal_id AND c.jarak=a.jarak
    WHERE a.prosesdata_id='".$$.id.'" AND a.jenis='".$$.jenis.'"
")->execute();

```


Source Code Menghitung Jarak Manhattan Distance

```

Yii::$app->db->createCommand("
    INSERT INTO id_jarak_d
    (jenis,prosesdata_id,iterasi,dataawal_id,jarak,centroid_id)
    SELECT
        ".$jenis." AS jenis,
        ".$id." AS prosesdata_id,
        b.iterasi,
        a.id AS dataawal_id,
        ROUND(ABS(a.tugas-b.tugas)+ABS(a.sikap-b.sikap)+ABS(a.uts-
b.uts)+ABS(a.uas-b.uas),4) AS jarak,
        b.centroid
    FROM(
        SELECT
            id,nama".$kolom."
        FROM id_data_awal
        )a
    JOIN(
        SELECT a.iterasi,a.id AS centroid,a.tugas,a.sikap,a.uts,a.uas FROM
id_centroid a
        INNER JOIN id_proses_data b ON b.id=a.prosesdata_id
        INNER JOIN(
            SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
            WHERE prosesdata_id=".$id." AND jenis=".$jenis."
        )c ON c.iterasi_max=a.iterasi
        WHERE b.id=".$id." AND a.jenis=".$jenis."
        GROUP BY a.id
        )b
    ")->execute();

Yii::$app->db->createCommand("
    INSERT INTO id_jarak

(jenis,prosesdata_id,iterasi_ke,dataawal_id,jarak_terkecil,centroid_id)
    SELECT
        ".$jenis." AS jenis,
        ".$id." AS prosesdata_id,
        b.iterasi_max AS iterasi_ke,
        a.dataawal_id,
        a.jarak,
        a.centroid_id
    FROM id_jarak_d a
    INNER JOIN(

```

```

SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
WHERE prosesdata_id='".$$.id.'" AND jenis='".$$.jenis.'"
)b ON b.iterasi_max=a.iterasi
INNER JOIN(
  SELECT
    a.dataawal_id,
    MIN(a.jarak) AS jarak
  FROM id_jarak_d a
  INNER JOIN(
    SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
    WHERE prosesdata_id='".$$.id.'" AND jenis='".$$.jenis.'"
  )b ON b.iterasi_max=a.iterasi
  WHERE a.prosesdata_id='".$$.id.'" AND a.jenis='".$$.jenis.'"
  GROUP BY a.dataawal_id
)c ON c.dataawal_id=a.dataawal_id AND c.jarak=a.jarak
WHERE a.prosesdata_id='".$$.id.'" AND a.jenis='".$$.jenis.'"
")->execute();

```

Source Code Menghitung Jarak Minkowski Distance

```

Yii::$app->db->createCommand("
  INSERT INTO id_jarak_d
  (jenis,prosesdata_id,iterasi,dataawal_id,jarak,centroid_id)
  SELECT
    '".$$.jenis.'" AS jenis,
    '".$$.id.'" AS prosesdata_id,
    b.iterasi,
    a.id AS dataawal_id,
    ROUND(POW(POW(ABS(a.tugas-b.tugas),3)+POW(ABS(a.sikap-
    b.sikap),3)+POW(ABS(a.uts-b.uts),3)+POW(ABS(a.uas-b.uas),3),(1/3)),4) AS
    jarak,
    b.centroid
  FROM(
    SELECT
      id,nama".$$.kolom."
    FROM id_data_awal
  )a
  JOIN(
    SELECT a.iterasi,a.id AS centroid,a.tugas,a.sikap,a.uts,a.uas FROM
    id_centroid a
    INNER JOIN id_proses_data b ON b.id=a.prosesdata_id
    INNER JOIN(
      SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
      WHERE prosesdata_id='".$$.id.'" AND jenis='".$$.jenis.'"
    )c ON c.iterasi_max=a.iterasi
    WHERE b.id='".$$.id.'" AND a.jenis='".$$.jenis.'"
    GROUP BY a.id

```

```

    )b
    ")->execute();

    Yii::$app->db->createCommand("
        INSERT INTO id_jarak

(jenis,prosesdata_id,iterasi_ke,dataawal_id,jarak_terkecil,centroid_id)
    SELECT
        ".$jenis." AS jenis,
        ".$id." AS prosesdata_id,
        b.iterasi_max AS iterasi_ke,
        a.dataawal_id,
        a.jarak,
        a.centroid_id
    FROM id_jarak_d a
    INNER JOIN(
        SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
        WHERE prosesdata_id=".$id." AND jenis=".$jenis."
    )b ON b.iterasi_max=a.iterasi
    INNER JOIN(
        SELECT
            a.dataawal_id,
            MIN(a.jarak) AS jarak
        FROM id_jarak_d a
        INNER JOIN(
            SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
            WHERE prosesdata_id=".$id." AND jenis=".$jenis."
        )b ON b.iterasi_max=a.iterasi
        WHERE a.prosesdata_id=".$id." AND a.jenis=".$jenis."
        GROUP BY a.dataawal_id
    )c ON c.dataawal_id=a.dataawal_id AND c.jarak=a.jarak
    WHERE a.prosesdata_id=".$id." AND a.jenis=".$jenis."
    ")->execute();

```

Source Code Menghitung SSW

```

    Yii::$app->db->createCommand("
        UPDATE id_centroid a
        INNER JOIN( SELECT
            a.centroid_id,
            SUM(a.jarak_terkecil) AS jarak,
            COUNT(a.id) AS jml,
            ROUND(SUM(a.jarak_terkecil)/COUNT(a.id),4) AS ssw
        FROM id_jarak a INNER JOIN(
            SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
            WHERE prosesdata_id=".$id." AND jenis=".$jenis."
        )b ON b.iterasi_max=a.iterasi_ke

```

```

WHERE a.jenis=" ".$jenis." AND a.prosesdata_id=" ".$id."
GROUP BY a.centroid_id
)b ON b.centroid_id=a.id SET a.ssw=b.ssw
")->execute();

```

Source Code Menghitung SSB, R Max, dan DBI

```

Yii::$app->db->createCommand("
INSERT INTO id_ssb
(prosesdata_id,jenis,iterasi,centroid_id_h,centroid_id_v,ssb)
SELECT
a.prosesdata_id,
a.jenis,
a.iterasi,
a.id AS centroid_id_h,
c.id AS centroid_id_v,
ROUND(SQRT(POW(a.tugas-c.tugas,2)+POW(a.sikap-
c.sikap,2)+POW(a.uts-c.uts,2)+POW(a.uas-c.uas,2)),4) AS ssb
FROM id_centroid a
INNER JOIN(
SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
WHERE prosesdata_id=" ".$id." AND jenis=" ".$jenis."
)b ON b.iterasi_max=a.iterasi
LEFT JOIN(
SELECT
a.*
FROM id_centroid a
INNER JOIN(
SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
WHERE prosesdata_id=" ".$id." AND jenis=" ".$jenis."
)b ON b.iterasi_max=a.iterasi
WHERE a.prosesdata_id=" ".$id." AND a.jenis=" ".$jenis."
)c ON c.prosesdata_id=a.prosesdata_id
AND c.jenis=a.jenis
AND c.iterasi=a.iterasi
WHERE a.prosesdata_id=" ".$id." AND a.jenis=" ".$jenis."
")->execute();

```

```

return Yii::$app->db->createCommand("
INSERT INTO id_dbi
(prosesdata_id,jenis,iterasi,centroid_id_h,centroid_id_v,r_val)
SELECT
a.prosesdata_id,
a.jenis,
a.iterasi,
a.id AS centroid_id_h,
c.id AS centroid_id_v,
IFNULL(ROUND((a.ssw+c.ssw)/d.ssb,4),0) AS r_val
FROM id_centroid a

```

```

INNER JOIN(
  SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
  WHERE prosesdata_id='".$id.'" AND jenis='".$jenis.'"
)b ON b.iterasi_max=a.iterasi
LEFT JOIN(
  SELECT
    a.id,
    a.prosesdata_id,
    a.jenis,
    a.iterasi,
    a.ssw
  FROM id_centroid a
  INNER JOIN(
    SELECT MAX(iterasi) AS iterasi_max FROM id_centroid
    WHERE prosesdata_id='".$id.'" AND jenis='".$jenis.'"
  )b ON b.iterasi_max=a.iterasi
  WHERE a.prosesdata_id='".$id.'" AND a.jenis='".$jenis.'"
)c ON c.prosesdata_id=a.prosesdata_id
  AND c.jenis=a.jenis
  AND c.iterasi=a.iterasi
  INNER JOIN id_ssb d ON d.prosesdata_id=a.prosesdata_id
  AND d.jenis=a.jenis
  AND d.iterasi=a.iterasi
  AND d.centroid_id_h=a.id
  AND d.centroid_id_v=c.id
  WHERE a.prosesdata_id='".$id.'" AND a.jenis='".$jenis.'"
")->execute();

```