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LISTING PROGRAM

aksi.php

```
<?php
require_once 'functions.php';

/** LOGIN */
if ($mod == 'login') {
    $user = esc_field($_POST['user']);
    $pass = esc_field($_POST['pass']);

    $row = $db->get_row("SELECT *
FROM tb_user WHERE user='$user' AND
pass='$pass'");
    if ($row) {
        $_SESSION['login'] = $row->user;
        $_SESSION['level'] = $row->level;
        redirect_js("index.php");
    } else {
        print_msg("Salah kombinasi
username dan password.");
    }
} elseif ($act == 'logout') {
    unset($_SESSION['login'],
$_SESSION['level']);
    header("location:index.php?m=login");
} else if ($mod == 'password') {
    $pass1 = $_POST['pass1'];
    $pass2 = $_POST['pass2'];
    $pass3 = $_POST['pass3'];

    $row = $db->get_row("SELECT *
FROM tb_user WHERE
user='$_SESSION[login]' AND
pass='$pass1'");

    if ($pass1 == "" || $pass2 == "" || $pass3
== "")
        print_msg('Field bertanda * harus
diisi.');
```

```
        print_msg('Field bertanda * harus
diisi.');
```

```
        elseif (!$row)
            print_msg('Password lama salah.');
```

```
        elseif ($pass2 != $pass3)
            print_msg('Password baru dan
konfirmasi password baru tidak sama.');
```

```
        else {
            $db->query("UPDATE tb_user SET
pass='$pass2' WHERE
user='$_SESSION[login]'");

            print_msg('Password berhasil
diubah.', 'success');
        }
    }

    /** periode */
    elseif ($mod == 'periode_tambah') {
        $kode_periode =
$_POST['kode_periode'];
        $tanggal = $_POST['tanggal'];
        if ($kode_periode == "" || $tanggal == "")
            print_msg("Field yang bertanda *
tidak boleh kosong!");
        elseif ($db->get_row("SELECT *
FROM tb_periode WHERE
kode_periode='$kode_periode'"))
            print_msg("Kode sudah ada!");
        elseif ($db->get_row("SELECT *
FROM tb_periode WHERE
tanggal='$tanggal' AND
kode_periode<>'$kode_periode'"))
            print_msg("Periode sudah ada!");
        else {
            $db->query("INSERT INTO
tb_periode (kode_periode, tanggal)
VALUES ('$kode_periode', '$tanggal')");
            foreach ($_POST['nilai'] as $key =>
$val) {
                $db->query("INSERT INTO
tb_relasi(kode_periode, kode_jenis, nilai)
VALUES ('$kode_periode', '$key',
'$val')");
            }
            redirect_js("index.php?m=periode");
        }
    } else if ($mod == 'periode_ubah') {
        $tanggal = $_POST['tanggal'];
        if ($tanggal == "")
            print_msg("Field yang bertanda *
tidak boleh kosong!");
        elseif ($db->get_row("SELECT *
FROM tb_periode WHERE
tanggal='$tanggal' AND
kode_periode<>'$_GET[ID]'"))
            print_msg("Periode sudah ada!");
        else {
            $db->query("UPDATE tb_periode
SET tanggal='$tanggal' WHERE
kode_periode='$_GET[ID]'");
        }
    }
}
```

```

        foreach ($_POST['nilai'] as $key =>
$val) {
            $db->query("UPDATE tb_relasi
SET nilai='$val' WHERE id='$key'");
        }
        redirect_js("index.php?m=periode");
    }
} else if ($sact == 'periode_hapus') {
    $kode_periode = $_GET['ID'];
    $db->query("DELETE FROM
tb_periode WHERE
kode_periode='$kode_periode'");
    $db->query("DELETE FROM tb_relasi
WHERE kode_periode='$kode_periode'");

header("location:index.php?m=periode");
}

/** jenis */
elseif ($mod == 'jenis_tambah') {
    $kode_jenis = $_POST['kode_jenis'];
    $nama_jenis = $_POST['nama_jenis'];

    if ($kode_jenis == "" || $nama_jenis == "")
        print_msg("Field bertanda * tidak
boleh kosong!");
    elseif ($db->get_results("SELECT *
FROM tb_jenis WHERE
kode_jenis='$kode_jenis'"))
        print_msg("Kode sudah ada!");
    else {
        $db->query("INSERT INTO tb_jenis
(kode_jenis, nama_jenis) VALUES
('$kode_jenis', '$nama_jenis')");
        $db->query("INSERT INTO
tb_relasi(kode_periode, kode_jenis)
SELECT kode_periode, '$kode_jenis'
FROM tb_periode");
        redirect_js("index.php?m=jenis");
    }
} else if ($mod == 'jenis_ubah') {
    $nama_jenis = $_POST['nama_jenis'];

    if ($nama_jenis == "")
        print_msg("Field bertanda * tidak
boleh kosong!");
    else {

```

```

        $db->query("UPDATE tb_jenis SET
nama_jenis='$nama_jenis' WHERE
kode_jenis=$_GET[ID]");
        redirect_js("index.php?m=jenis");
    }
} else if ($sact == 'jenis_hapus') {
    $db->query("DELETE FROM tb_relasi
WHERE kode_jenis=$_GET[ID]");
    $db->query("DELETE FROM tb_jenis
WHERE kode_jenis=$_GET[ID]");
    header("location:index.php?m=jenis");
}

```

cetak.php

```

<?php include 'functions.php'; ?>
<!doctype html>
<html>

<head>
    <title>Cetak Laporan</title>
    <link href="assets/css/cosmo-
bootstrap.min.css" rel="stylesheet" />
    <style>
        .wrapper {
            margin: 0 auto;
            max-width: 1024px;
        }
    </style>

    <body onload="window.print()">
    <table width="1025" border="1"
align="center">
        <tr>
            <td width="106"></td>
            <td width="612"><div align="center">
                <h3><span class="style2">PREDIKSI
PERSEDIAAN HANDPHONE
</span><br />
                <span class="style1">NANDO
PONSEL</span></h3>
                <p>Jalan.Lintas Sumatera, Kisaran
Timur
</p>
            </div></td>
        </tr>
    </table> <hr> <br>
    <script
src="assets/js/highcharts.js"></script>

```

```

<script
src="assets/js/modules/exporting.js"></scr
ipt>
<script src="assets/js/modules/export-
data.js"></script>
<script
src="assets/js/modules/accessibility.js"></
script>
</head>

```

```

<body onload="window.print()">
<div class="wrapper">
<?php

if (is_file($mod . '_cetak.php'))
include $mod . '_cetak.php';
?>
</div>
</body>

```

```

</html>
<br> <br>
<p align="right"><strong>Pemilik,
<?php

$tgl=date('d-m-Y');
echo $tgl;
?>
<br>

```

```

</strong></p>
<p>&nbsp;</p>
<p
align="right">Nita Purnamasari</p>
<p>&nbsp;</p>

```

data.php

```

<div class="page-header">
<h1>Data Periode</h1>
</div>
<div class="panel panel-default">
<div class="panel-heading">
<form class="form-inline">
<input type="hidden" name="m"
value="data" />
<div class="form-group">
<input class="form-control"
type="text" placeholder="Pencarian. . ."
name="q" value="<?= _get('q') ?>" />
</div>
<div class="form-group">

```

```

<button class="btn btn-
success"><span class="glyphicon
glyphicon-refresh"></span>
Refresh</button>
</div>

```

```

<div class="form-group">
<a class="btn btn-primary"
href="?m=data_tambah"><span
class="glyphicon glyphicon-
plus"></span> Tambah</a>
</div>
</form>
</div>

```

```

<table class="table table-bordered table-
hover table-striped">
<thead>
<tr>
<th>No</th>
<th>Tanggal</th>
<th>Kode</th>
<th>Nama jenis</th>
<th>Jumlah Permintaan</th>
<th>Aksi</th>
</tr>
</thead>
<?php

```

```

$g = esc_field(_get('q'));
$pg = new Paging();
$limit = 25;
$offset = $pg->get_offset($limit,
_get('page'));

```

```

$where = "WHERE p.kode_jenis
LIKE '%$q%' OR p.nama_jenis LIKE
'%$q%'";
$from = "FROM tb_data d INNER
JOIN tb_jenis p ON
p.kode_jenis=d.kode_jenis";

```

```

$rows = $db->get_results("SELECT
* $from $where ORDER BY tanggal,
p.kode_jenis LIMIT $offset, $limit");
$jumrec = $db->get_var("SELECT
COUNT(*) $from $where");
$no = $offset;

```

```

foreach ($rows as $row) : ?>
<tr>
<td><?= ++$no ?></td>
<td><?= $row->tanggal ?></td>

```

```

foreach ($rows as $row) : ?>

```

```

<tr>
<td><?= ++$no ?></td>
<td><?= $row->tanggal ?></td>

```

```

        <td><?= $row->kode_jenis
?></td>
        <td><?= $row->nama_jenis
?></td>
        <td><?= $row->jumlah ?></td>
        <td>
            <a class="btn btn-xs btn-
warning" href="?m=data_ubah&ID=<?=
$row->id_data ?>"><span
class="glyphicon glyphicon-
edit"></span></a>
            <a class="btn btn-xs btn-
danger"
href="aksi.php?act=data_hapus&ID=<?=
$row->id_data ?>" onclick="return
confirm('Hapus data?')"><span
class="glyphicon glyphicon-
trash"></span></a>
        </td>
    </tr>
    <?php endforeach ?>
</table>
<div class="panel-footer">
    <ul class="pagination"><?= $pg-
>show("m=data&q=$q&page=", $jumrec,
$limit, _get('page')) ?></ul>
    </div>
</div>

```

cetak_periode.php

```

<div class="panel panel-default">
    <table class="table table-bordered
table-hover table-striped">
        <thead>
            <tr>
                <th>Periode Penjualan</th>
                <?php foreach ($JENIS as
$key => $val) : ?>
                    <th><?= $val ?></th>
                <?php endforeach ?>
            </tr>
        </thead>
        <?php
            $q = esc_field(_get('q'));
            $rows = $db-
>get_results("SELECT * FROM
tb_periode WHERE tanggal LIKE '%$q%'
ORDER BY id_periode");
            $no = 0;

```

```

            $data = get_data();
            foreach ($rows as $row) : ?>
                <tr>
                    <td><?= $row->tanggal
?></td>
                    <?php foreach ($data[$row-
>id_periode] as $k => $v) : ?>
                        <td><?= $v ?></td>
                    <?php endforeach ?>
                </tr>
            <?php endforeach; ?>
        </table>
    </div>

```

config.php

```

<?php
$config["server"] = 'localhost';
$config["username"] = 'root';
$config["password"] = '';
$config["database_name"] =
'nandoponsel';

```

functions.php

```

<?php
error_reporting(~E_NOTICE);
session_start();
include 'config.php';
include 'includes/db.php';
$db = new DB($config['server'],
$config['username'], $config['password'],
$config['database_name']);
include 'includes/ses_wma.php';

```

```

function _post($key, $val = null)
{
    global $_POST;
    if (isset($_POST[$key]))
        return $_POST[$key];
    else
        return $val;
}

```

```

function _get($key, $val = null)
{
    global $_GET;
    if (isset($_GET[$key]))
        return $_GET[$key];
    else
        return $val;
}

```

```
function _session($key, $val = null)
{
    global $_SESSION;
    if (isset($_SESSION[$key]))
        return $_SESSION[$key];
    else
        return $val;
}
```

```
$mod = _get('m');
$act = _get('act');
```

```
$db->query("DELETE FROM tb_relati
WHERE id_periode NOT IN (SELECT
id_periode FROM tb_periode)");
```

```
$rows = $db->get_results("SELECT *
FROM tb_periode ORDER BY tanggal");
foreach ($rows as $row) {
    $PERIODE[$row->id_periode] = $row;
}
```

```
$rows = $db->get_results("SELECT *
FROM tb_jenis ORDER BY kode_jenis");
foreach ($rows as $row) {
    $JENIS[$row->kode_jenis] = $row-
>nama_jenis;
}
```

```
function get_jenis_option($SELECTed =
0)
```

```
{
    global $JENIS;
    $a = "";
    foreach ($JENIS as $key => $value) {
        if ($key == $SELECTed)
            $a .= "<option value='$key'
SELECTed>$value</option>";
        else
            $a .= "<option
value='$key'>$value</option>";
    }
    return $a;
}
```

```
function get_data()
{
    global $db;
```

```
$rows = $db->get_results("SELECT *
FROM tb_relati r INNER JOIN
tb_periode p ON
p.id_periode=r.id_periode
ORDER BY r.id_periode, kode_jenis");
```

```
$data = [];
foreach ($rows as $row) {
    $data[$row->id_periode][$row-
>kode_jenis] = $row->nilai;
}
return $data;
```

```
function esc_field($str)
```

```
{
    if ($str)
        return addslashes($str);
}
```

```
function redirect_js($url)
```

```
{
    echo '<script
type="text/javascript">window.location.re
place("'" . $url . "'");</script>';
}
```

```
function alert($url)
```

```
{
    echo '<script
type="text/javascript">alert("'" . $url .
"'");</script>';
}
```

```
function print_msg($msg, $type =
'danger')
```

```
{
    echo '<div class="alert alert-' . $type . '
alert-dismissible fade show" role="alert">
    <button type="button" class="btn-
close" data-bs-dismiss="alert" aria-
label="Close"></button>
    ' . $msg . '
    </div>';
}
```

```
function dd($arr)
```

```
{
    echo '<pre>' . print_r($arr, 1) . '</pre>';
}
```

```
function kode_oto($field, $table, $prefix,
$length)
```

```
{
    global $db;
    $var = $db->get_var("SELECT $field
FROM $table WHERE $field REGEXP
'{$prefix}[0-9]{{{ $length}}}' ORDER BY
$field DESC");
    if ($var) {
        return $prefix . substr(str_repeat('0',
$length) . (substr($var, -$length) + 1), -
$length);
    } else {
        return $prefix . str_repeat('0', $length
- 1) . 1;
    }
}
```

```
function set_value($key = null, $default =
null)
```

```
{
    global $_POST;
    if (isset($_POST[$key]))
        return $_POST[$key];

    if (isset($_GET[$key]))
        return $_GET[$key];
}
```

```
return $default;
```

```
}
```

hitung.php

```
<div class="page-header">
    <h1>Perhitungan Metode WMA</h1>
</div>
<?php
```

```
$success = false;
```

```
if ($_POST) {
    $awal = $_POST['awal'];
    $akhir = $_POST['akhir'];
    $next_periode =
$_POST['next_periode'];
    $n_periode = $_POST['n_periode'];
    $count = $db->get_var("SELECT
COUNT(*) FROM tb_periode");
```

```
    if ($n_periode < 2 || $n_periode >
$count) {
        print_msg("Isikan periode moving
antara 2 dan $count");
    } elseif ($next_periode < 1) {
        print_msg("Masukkan periode
peramalan minimal 1");
    } else {
        $success = true;
    }
}
```

```
?>
```

```
<form method="post">
    <div class="card mb-3">
        <div class="card-header">
            <strong>Masukkan
periode</strong>
        </div>
        <div class="card-body">
            <div class="row">
                <div class="col-md-4">
                    <div class="mb-3">
                        <label>Jenis <span
class="text-danger">*</span></label>
                        <select class="form-select"
name="kode_jenis">
                            <?=
get_jenis_option(set_value('kode_jenis'))
?>
```

```
</select>
```

```
</div>
```

```
<div class="mb-3">
```

```
    <label>Moving Periode
(WMA) <span class="text-
danger">*</span></label>
```

```
    <input class="form-control"
type="number" name="n_periode"
value="<?= set_value('n_periode', 3) ?>"
/>
```

```
</div>
```

```
<div class="mb-3">
```

```
    <label>Periode yang
diramal <span class="text-
danger">*</span></label>
```

```
    <input class="form-control"
type="number" name="next_periode"
value="<?= set_value('next_periode', 3)
?>" />
```

```
</div>
```

```

        <button class="btn btn-
primary"><span class="fa fa-
signal"></span> Hitung</button>
    </div>
</div>
</div>
</div>
</form>
<?php
if ($success) :
    include 'hitung_hasil.php';
endif ?>

```

hitung_cetak.php

```

<?php
$_POST = $_SESSION['POST'];
$kode_jenis = set_value('kode_jenis');
$next_periode = set_value('next_periode');
$alpha = set_value('alpha');
$n_periode = set_value('n_periode');
$rows = $db->get_results("SELECT
MAX(tanggal) AS tanggal, SUM(nilai) AS
total FROM tb_relasi r INNER JOIN
tb_periode p ON
p.id_periode=r.id_periode WHERE
kode_jenis='$kode_jenis' GROUP BY
YEAR(tanggal), MONTH(tanggal)");
$data = [];
foreach ($rows as $row) {
    $data[$row->tanggal] = $row->total;
}
include 'wma_cetak.php';

```

hitung_hasil.php

```

<?php
$kode_jenis = set_value('kode_jenis');
$rows = $db->get_results("SELECT
MAX(tanggal) AS tanggal, SUM(nilai) AS
total FROM tb_relasi r INNER JOIN
tb_periode p ON
p.id_periode=r.id_periode WHERE
kode_jenis='$kode_jenis' GROUP BY
YEAR(tanggal), MONTH(tanggal)");

$data = [];
foreach ($rows as $row) {
    $data[$row->tanggal] = $row->total;
}

```

```

}
$g_series = [];
$_SESSION['POST'] = $_POST;

include 'hitung_wma.php';
?>

<a class="btn btn-primary"
href="cetak.php?m=hitung"
target="_blank"><span class="fa fa-
print"></span> Cetak </a>

```

hitung_wma.php

```

<?php

$ma = new
WeightedMovingAverage($data,
$next_periode, $n_periode);
$categories = [];
$series = [];
?>

<div class="card mb-3">
    <div class="card-header">
        <strong><a data-bs-toggle="collapse"
href="#sma_hitung"><? =
$JENIS[$kode_jenis] ?></a></strong>
    </div>
    <div class="table-responsive collapse
show" id="sma_hitung">
        <table class="table table-bordered
table-hover table-bordered table-striped">
            <thead>
                <tr>
                    <th>Periode</th>
                    <th>Persediaan</th>
                    <th>Prediksi</th>
                    <th>Error</th>
                    <th>Abs Error</th>
                    <th>Error^2</th>
                    <th>MAPE</th>
                </tr>
            </thead>
            <?php foreach ($data as $key =>
$val) :
                $categories[$key] = date('M Y',
strtotime($key));
                $series['aktual'][$key] =
$val * 1;

```

```

$series['prediksi']['data'][$key] =
isset($ma->ft[$key]) ? round($ma-
>ft[$key], 2) : null; ?>
<tr>
<td><?= date('M Y',
strtotime($key)) ?></td>
<td><?=
number_format($val) ?></td>
<td><?= isset($ma->ft[$key])
? number_format($ma->ft[$key], 2) : null
?></td>
<td><?= isset($ma->et[$key])
? number_format($ma->et[$key], 2) : "
?></td>
<td><?= isset($ma-
>et_square[$key]) ? number_format($ma-
>et_square[$key], 2) : " ?></td>
<td><?= isset($ma-
>et_abs[$key]) ? number_format($ma-
>et_abs[$key], 2) : " ?></td>
<td><?= isset($ma-
>et_yt[$key]) ? number_format($ma-
>et_yt[$key], 2) : " ?></td>
</tr>
<?php endforeach ?>
<tr>
<td colspan="4" class="text-
right">MAD (Mean Absolute
Deviation)</td>
<td><?= number_format($ma-
>error['MAE'], 2) ?></td>
<td>&nbsp;</td>
<td>&nbsp;</td>
</tr>
<tr>
<td colspan="4" class="text-
right">MSE (Mean Square Error)</td>
<td>&nbsp;</td>
<td><?= number_format($ma-
>error['MSE'], 2) ?></td>
<td>&nbsp;</td>
</tr>
<tr>
<td colspan="4" class="text-
right">MAPE (Mean Absolute Percentage
Error)</td>
<td>&nbsp;</td>
<td>&nbsp;</td>
<td><?= number_format($ma-
>error['MAPE'], 2) ?> % </td>

```

```

</tr>
</table>
</div>
<div class="card-body">
    Hasil Prediksi:
</div>
<div class="table-responsive">
    <table class="table table-bordered
table-hover table-bordered table-striped">
        <thead>
            <tr>
                <th>Periode (n)</th>
                <th>Prediksi Persediaan</th>
            </tr>
        </thead>
        <?php
            $max_periode =
            max(array_keys($data));
            $max_periode =
            substr($max_periode, 0, 8) . '15';
            foreach ($ma->next_ft as $a =>
            $val) :
                $key = date('M Y',
                strtotime("+ $a month",
                strtotime($max_periode)));
                $categories[$key] = $key;
                $series['aktual']['data'][$key] =
                null;
                $series['prediksi']['data'][$key] =
                round($val, 2); ?>
            </tr>
            <td><?= $key ?></td>
            <td><?=
            number_format($val) ?></td>
        </tr>
        <?php endforeach ?>
    </table>
</div>
<div class="card-body">
    <div id="chart_wma"></div>
    <script>
        <?php
            $categories =
            array_values($categories);
            $series['aktual']['name'] = 'Aktual';
            $series['prediksi']['name'] =
            'Prediksi';
            $series['aktual']['data'] =
            array_values($series['aktual']['data']);

```

```

        $series['prediksi']['data'] =
array_values($series['prediksi']['data']);
        $g_series['aktual'] =
$series['aktual'];
        $g_series['wma'] =
$series['prediksi'];
        $g_series['wma']['name'] =
'Prediksi WMA';
        $series = array_values($series);
        ?>
        Highcharts.chart('chart_wma', {
            chart: {
                type: 'line'
            },
            title: {
                text: 'Grafik Aktual Yang
Menggunakan Data Periode Sebelumnya
dan Grafik Prediksi Untuk Persediaan
Handphone ' + '<?=$JENIS[$kode_jenis]
?> Di Periode Berikutnya'
            },
            xAxis: {
                categories: <?=$
json_encode($categories) ?>
            },
            yAxis: {
                title: {
                    text: 'Total'
                }
            },
            plotOptions: {
                line: {
                    dataLabels: {
                        enabled: true
                    },
                    enableMouseTracking:
false
                }
            },
            series: <?=$ json_encode($series)
?>
        });
    </script>
</div>
</div>

```

home.php

```

<div class="page-header">
    <h1>Home</h1>

```

```

</div>
<br> 



```

index.php

```

<?php
include 'functions.php';
//if(empty($_SESSION[login]))
//header("location:login.php");
?>
<!DOCTYPE html>
<html lang="en" class="h-100">

<head>
    <meta charset="utf-8" />
    <meta http-equiv="X-UA-
Compatible" content="IE=edge" />
    <meta name="viewport"
content="width=device-width, initial-
scale=1" />
    <link rel="icon" href="logo.ico" />

    <title>NANDO PONSEL</title>
    <link href="assets/css/cosmo-
bootstrap.min.css" rel="stylesheet" />
    <link
href="assets/fontawesome/css/all.min.css"
rel="stylesheet" />
    <script
src="assets/js/bootstrap.bundle.min.js"></s
cript>
    <script src="assets/js/jquery-
3.6.0.min.js"></script>

    <script
src="assets/js/highcharts.js"></script>
    <script
src="assets/js/modules/exporting.js"></scr
ipt>
    <script
src="assets/js/modules/export-
data.js"></script>
    <script
src="assets/js/modules/accessibility.js"></
script>

```

```
</head>
```

```
<body class="d-flex flex-column h-100">
  <nav class="navbar navbar-
expand-lg navbar-dark bg-primary">
```

```
    <div class="container">
      <left></left>
```

```
      <a class="navbar-
brand" href="#">NANDO PONSEL</a>
```

```
      <button
class="navbar-toggler" type="button"
data-bs-toggle="collapse" data-bs-
target="#navbarSupportedContent" aria-
controls="navbarSupportedContent" aria-
expanded="false" aria-label="Toggle
navigation">
```

```
        <span
class="navbar-toggler-icon"></span>
      </button>
```

```
      <div class="collapse
navbar-collapse"
id="navbarSupportedContent">
```

```
        <ul
class="navbar-nav me-auto mb-2 mb-lg-
0">
```

```
          <?php if (session('login')) : ?>
```

```
            <li class="nav-item">
```

```
              <a class="nav-link"
href="?m=jenis"><span class="fas fa-fw
fa-tags"></span>Jenis Handphone</a>
```

```
            </li>
```

```
          <li class="nav-item">
```

```
            <a class="nav-link"
href="?m=periode"><span class="fa fa-
calendar"></span> Periode
Persediaan</a>
```

```
          </li>
```

```
        <li class="nav-item">
```

```
          <a class="nav-link"
href="?m=hitung"><span class="fa fa-
signal"></span> Perhitungan WMA</a>
```

```
        </li>
```

```
      <li class="nav-item">
```

```
        <a class="nav-link"
href="?m=password"><span class="fa fa-
lock"></span> Password</a>
```

```
      </li>
```

```
    <li class="nav-item">
```

```
      <a class="nav-link"
href="aksi.php?act=logout"><span
class="fa fa-right-from-bracket"></span>
Logout</a>
```

```
    </li>
```

```
    <?php else : ?>
```

```
    <li class="nav-item">
```

```
      <a class="nav-link"
href="?m=hitung"><span class="fa fa-
signal"></span> Perhitungan WMA</a>
```

```
    </li>
```

```
  <li class="nav-item">
```

```
    <a class="nav-link"
href="?m=login"><span class="fa fa-right-
to-bracket"></span> Login</a>
```

```
  </li>
```

```
<?php endif ?>
```

```
</ul>
```

```
</div>
```

```
</div>
```

```
</nav>
```

```
<main class="flex-shrink-0">
```

```
  <div class="container my-
```

```
4">
```

```

        <?php
            if (!_session('login')
            && !in_array($mod, array('home',
            'hitung', 'login', 'tentang'))
            $mod =
            'login';

            if (file_exists($mod
            . '.php'))
                include
            $mod . '.php';
            else
                include
            'home.php';
        <?>
    </div>
</main>
<footer class="mt-auto bg-primary
text-light py-3">
    <div class="container">
        Copyright &copy;
        <?= date('Y') ?> NANDO PONSEL<em
        class="float-end">Made By PUPSITA
        SARI SITORUS - 20220522</em>
    </div>
</footer>
<script type="text/javascript">
    $('form-
    control').attr('autocomplete', 'off');
</script>
</body>

</html>

```

jenis.php

```

<div class="page-header">
    <h1>Jenis Handphone</h1> </div>
<div class="card mb-3">
    <div class="card-header">
        <form class="row row-cols-auto g-
        1">
            <input type="hidden" name="m"
            value="jenis" />
            <div class="col">
                <input class="form-control"
                type="text" placeholder="Pencarian. . ."
                name="q" value="<?= _get('q') ?>" />
            </div>
            <div class="col">

```

```

                <button class="btn btn-
                primary"><span class="glyphicon
                glyphicon-search"></span>
                Pencarian</button>
            </div>
            <div class="col">
                <a class="btn btn-primary"
                href="?m=jenis_tambah"><span class="fa
                fa-plus"></span> Tambah</a>
            </div>
        </form>
    </div>
    <table class="table table-bordered table-
    hover table-striped m-0">
        <thead>
            <tr>
                <th>Kode</th>
                <th>Handphone</th>
                <th>Aksi</th>
            </tr>
        </thead>
        <?php
            $q = esc_field(_get('q'));
            $rows = $db->get_results("SELECT
            * FROM tb_jenis WHERE nama_jenis
            LIKE '%$q%' ORDER BY kode_jenis");
            $no = 0;
            foreach ($rows as $row) : ?>
                <tr>
                    <td><?= $row->kode_jenis
                    ?></td>
                    <td><?= $row->nama_jenis
                    ?></td>
                    <td>
                        <a class="btn btn-sm btn-
                        warning" href="?m=jenis_ubah&ID=<?=
                        $row->kode_jenis ?>"><span class="fa fa-
                        edit"></span></a>
                        <a class="btn btn-sm btn-
                        danger"
                        href="aksi.php?act=jenis_hapus&ID=<?=
                        $row->kode_jenis ?>" onclick="return
                        confirm('Hapus data?')"><span class="fa
                        fa-trash"></span></a>
                    </td>
                </tr>
            <?php endforeach ?>
        </table>
    </div>

```

jenis_tambah.php

```
<div class="page-header">
  <h1>Tambah Jenis Handphone</h1>
</div>
<div class="row">
  <div class="col-sm-6">
    <?php if ($_POST) include 'aksi.php'
    ?>
    <form method="post">
      <div class="mb-3">
        <label>Kode <span class="text-
        danger">*</span></label>
        <input class="form-control"
        type="text" name="kode" value="<?=
        set_value('kode', kode_oto('kode_jenis',
        'tb_jenis', 'J', 2)) ?>" />
      </div>
      <div class="mb-3">
        <label>Handphone<span
        class="text-danger">*</span></label>
        <input class="form-control"
        type="text" name="nama" value="<?=
        set_value('nama') ?>" />
      </div>
      <div class="mb-3">
        <button class="btn btn-
        primary"><span class="fa fa-
        save"></span> Simpan</button>
        <a class="btn btn-primary"
        href="?m=jenis"><span class="fa fa-
        arrow-left"></span> Kembali</a>
      </div>
    </form>
  </div>
</div>
```

jenis_ubah.php

```
<?php
$row = $db->get_row("SELECT * FROM
tb_jenis WHERE
kode_jenis=$_GET[ID]");
?>
<div class="page-header">
  <h1>Ubah Jenis Handphone</h1>
</div>
<div class="row">
  <div class="col-sm-6">
    <?php if ($_POST) include 'aksi.php'
    ?>
    <form method="post">
```

```

    <div class="mb-3">
      <label>Kode <span class="text-
      danger">*</span></label>
      <input class="form-control"
      type="text" name="kode"
      readonly="readonly" value="<?= $row-
      >kode_jenis ?>" />
    </div>
    <div class="mb-3">
      <label>Handphone<span
      class="text-danger">*</span></label>
      <input class="form-control"
      type="text" name="nama" value="<?=
      $row->nama_jenis ?>" />
    </div>
    <div class="mb-3">
      <button class="btn btn-
      primary"><span class="fa fa-
      save"></span> Simpan</button>
      <a class="btn btn-primary"
      href="?m=jenis"><span class="fa fa-
      arrow-left"></span> Kembali</a>
    </div>
  </form>
</div>
</div>
```

login.php

```
<div class="page-header">
  <h1>Login</h1>
</div>
<div class="row">
  <div class="col-md-4">
    <?php if ($_POST) include 'aksi.php';
    ?>
    <form class="form-signin"
    action="?m=login" method="post">
      <div class="mb-3">
        <input type="text" class="form-
        control" placeholder="Username"
        name="user" autofocus />
      </div>
      <div class="mb-3">
        <input type="password"
        id="inputPassword" class="form-control"
        placeholder="Password" name="pass" />
      </div>
      <div class="mb-3">
```

```

        <button class="btn btn-primary"
type="submit"><span class="fa fa-right-
to-bracket"></span> Masuk</button>
    </div>
</form>
</div>
</div>

```

password.php

```

<div class="page-header">
    <h1>Ubah Password</h1>
</div>
<div class="row">
    <div class="col-sm-5">
        <?php if ($_POST) include 'aksi.php'
?>
        <form method="post">
            <div class="mb-3">
                <label>Password Lama <span
class="text-danger">*</span></label>
                <input class="form-control"
type="password" name="pass1" />
            </div>
            <div class="mb-3">
                <label>Password Baru <span
class="text-danger">*</span></label>
                <input class="form-control"
type="password" name="pass2" />
            </div>
            <div class="mb-3">
                <label>Konfirmasi Password
Baru <span class="text-
danger">*</span></label>
                <input class="form-control"
type="password" name="pass3" />
            </div>
            <button class="btn btn-
primary"><span class="fa fa-
save"></span> Simpan</button>
        </form>
    </div>
</div>

```

periode.php

```

<div class="page-header">
    <h1>Data Persediaan</h1>
</div>
<div class="card mb-3">
    <div class="card-header">

```

```

1">
        <input type="hidden" name="m"
value="periode" />
        <div class="col">
            <input class="form-control"
type="text" placeholder="Pencarian. . ."
name="q" value="<?=$_get('q') ?>" />
        </div>
        <div class="col">
            <button class="btn btn-
primary"><span class="glyphicon
glyphicon-search"></span>
Pencarian</button>
        </div>
        <div class="col">
            <a class="btn btn-primary"
href="?m=periode_tambah"><span
class="fa fa-plus"></span> Tambah</a>
        </div>
    </form>
</div>
<div class="table-responsive">
    <table class="table table-bordered
table-hover table-striped m-0">
        <thead>
            <tr>
                <th>No</th>
                <th>Periode Persediaan</th>
                <?php foreach ($JENIS as
$key => $val) : ?>
                    <th><?=$val ?></th>
                <?php endforeach ?>
                <th>Aksi</th>
            </tr>
        </thead>
        <?php
        $q = esc_field($_get('q'));
        $rows = $db-
>get_results("SELECT * FROM
tb_periode WHERE tanggal LIKE '%$q%'
ORDER BY id_periode");
        $no = 0;
        $data = get_data();
        foreach ($rows as $row) : ?>
            <tr>
                <td><?=$row->id_periode
?></td>
                <td><?=$row->tanggal
?></td>

```

```

        <?php foreach ($data[$row->id_periode] as $k => $v) : ?>
            <td><?=$v ?></td>
        <?php endforeach ?>
        <td class="nw">
            <a class="btn btn-sm btn-warning"
href="?m=periode_ubah&ID=<?=$row->id_periode ?>"><span class="fa fa-edit"></span></a>
            <a class="btn btn-sm btn-danger"
href="aksi.php?act=periode_hapus&ID=<?=$row->id_periode ?>" onclick="return confirm('Hapus data?')"><span class="fa fa-trash"></span></a>
        </td>
    </tr>
<?php endforeach; ?>
</table>
</div>
</div>

```

periode_tambah.php

```

<div class="page-header">
    <h1>Tambah Data Persediaan</h1>
</div>
<form method="post">
    <div class="row">
        <div class="col-sm-6">
            <?php if ($_POST) include 'aksi.php' ?>
            <div class="mb-3">
                <label>Tanggal <span class="text-danger">*</span></label>
                <input class="form-control" type="date" name="tanggal" value="<?=$set_value('tanggal', date('Y-m-d')) ?>" />
            </div>
            <?php foreach ($JENIS as $key => $val) : ?>
                <div class="mb-3">
                    <label><?=$val ?></label>
                    <input class="form-control" type="number" name="nilai[<?=$key ?>]" value="<?=$isset($_POST['nilai'][$key]) ? $_POST['nilai'][$key] : " ?>" />
                </div>
            <?php endforeach ?>
        </div>
    </div>

```

```

    </div>
</div>
<div class="mb-3">
    <button class="btn btn-primary"><span class="fa fa-save"></span> Simpan</button>
    <a class="btn btn-primary" href="?m=periode"><span class="fa fa-arrow-left"></span> Kembali</a>
</div>
</form>

```

periode_ubah.php

```

<?php
$row = $db->get_row("SELECT * FROM tb_periode WHERE id_periode='$_GET[ID]'");
?>
<div class="page-header">
    <h1>Ubah Data Persediaan</h1>
</div>
<form method="post">
    <div class="row">
        <div class="col-sm-6">
            <?php if ($_POST) include 'aksi.php' ?>
            <div class="mb-3">
                <label>Tanggal <span class="text-danger">*</span></label>
                <input class="form-control" type="date" name="tanggal" value="<?=$set_value('tanggal', $row->tanggal) ?>" />
            </div>
            <?php
                $rows = $db->get_results("SELECT * FROM tb_relasi WHERE id_periode='$row->id_periode' ORDER BY kode_jenis");
                foreach ($rows as $row) : ?>
                    <div class="mb-3">
                        <label><?=$JENIS[$row->kode_jenis] ?></label>
                        <input type="number" class="form-control" name="nilai[<?=$row->ID ?>]" value="<?=$row->nilai ?>" />
                    </div>
                <?php endforeach ?>
            </div>
        </div>
    </div>

```

```

<div class="mb-3">
  <button class="btn btn-
primary"><span class="fa fa-
save"></span> Simpan</button>
  <a class="btn btn-primary"
href="?m=periode"><span class="fa fa-
arrow-left"></span> Kembali</a>
</div>
</form>

```

wma_cetak.php

```
<?php
```

```

$ma = new
WeightedMovingAverage($data,
$next_periode, $n_periode);
$categories = [];
$series = [];
?>
<div class="card mb-3">
  <div class="card-header">
    <strong><a data-bs-toggle="collapse"
href="#sma_hitung"><? =
$JENIS[$kode_jenis] ?></a></strong>
  </div>
  <div class="table-responsive collapse
show" id="sma_hitung">
    <table class="table table-bordered
table-hover table-bordered table-striped">
      <thead>
        <tr>
          <th>Periode</th>
          <th>Persediaan</th>
          <th>Prediksi</th>
          <th>Error</th>
          <th>Abs Error</th>
          <th>Error^2</th>
          <th>MAPE</th>
        </tr>
      </thead>
      <?php foreach ($data as $key =>
$val) :
        $categories[$key] = date('M Y',
strtotime($key));
        $series['aktual'][$data][$key] =
$val * 1;
        $series['prediksi'][$data][$key] =
isset($ma->ft[$key]) ? round($ma-
>ft[$key], 2) : null; ?>
      <tr>

```

```

        <td><? = date('M Y',
strtotime($key)) ?></td>
        <td><? =
number_format($val) ?></td>
        <td><? = isset($ma->ft[$key])
? number_format($ma->ft[$key], 2) : null
?></td>
        <td><? = isset($ma->et[$key])
? number_format($ma->et[$key], 2) : "
?></td>
        <td><? = isset($ma-
>et_square[$key]) ? number_format($ma-
>et_square[$key], 2) : " ?></td>
        <td><? = isset($ma-
>et_abs[$key]) ? number_format($ma-
>et_abs[$key], 2) : " ?></td>
        <td><? = isset($ma-
>et_yt[$key]) ? number_format($ma-
>et_yt[$key], 2) : " ?></td>
      </tr>
    <?php endforeach ?>
  <tr>
    <td colspan="4" class="text-
right">MAD (Mean Absolute
Deviation)</td>
    <td><? = number_format($ma-
>error['MSE'], 2) ?></td>
    <td>&nbsp;</td>
    <td>&nbsp;</td>
  </tr>
  <tr>
    <td colspan="4" class="text-
right">MSE (Mean Square Error)</td>
    <td>&nbsp;</td>
    <td><? = number_format($ma-
>error['MAE'], 2) ?></td>
    <td>&nbsp;</td>
  </tr>
  <tr>
    <td colspan="4" class="text-
right">MAPE (Mean Absolute Percentage
Error)</td>
    <td>&nbsp;</td>
    <td>&nbsp;</td>
    <td><? = number_format($ma-
>error['MAPE'], 2) ?> % </td>
  </tr>
</table>
</div>
<div class="card-body">

```

```

        Hasil Prediksi:
    </div>
    <div class="table-responsive">
        <table class="table table-bordered
        table-hover table-bordered table-striped">
            <thead>
                <tr>
                    <th>Periode (n)</th>
                    <th>Prediksi Persediaan</th>
                </tr>
            </thead>
            <?php
                $max_periode =
                max(array_keys($data));
                $max_periode =
                substr($max_periode, 0, 8) . '15';
                foreach ($ma->next_ft as $a =>
                $val) :
                    $key = date('M Y',
                    strtotime("+ $a month",
                    strtotime($max_periode)));
                    $categories[$key] = $key;
                    $series['aktual']['data'][$key] =
                    null;
                    $series['prediksi']['data'][$key] =
                    round($val, 2); ?>
                <tr>
                    <td><?=$key ?></td>
                    <td><?=$
                    number_format($val) ?></td>
                </tr>
            <?php endforeach ?>
        </table>
    </div>
    <div class="card-body">
        <div id="chart_wma"></div>
        <script>
            <?php
                $categories =
                array_values($categories);
                $series['aktual']['name'] = 'Aktual';
                $series['prediksi']['name'] =
                'Prediksi';
                $series['aktual']['data'] =
                array_values($series['aktual']['data']);
                $series['prediksi']['data'] =
                array_values($series['prediksi']['data']);
                $g_series['aktual'] =
                $series['aktual'];

```

```

                $g_series['wma'] =
                $series['prediksi'];
                $g_series['wma']['name'] =
                'Prediksi WMA';
                $series = array_values($series);
                ?>
                Highcharts.chart('chart_wma', {
                    chart: {
                        type: 'line'
                    },
                    title: {
                        text: 'Grafik Aktual Yang
                        Menggunakan Data Periode Sebelumnya
                        dan Grafik Prediksi Untuk Persediaan
                        Handphone ' + '<?=$JENIS[$kode_jenis]
                        ?> Di Periode Berikutnya'
                    },
                    xAxis: {
                        categories: <?=$
                        json_encode($categories) ?>
                    },
                    yAxis: {
                        title: {
                            text: 'Total'
                        }
                    },
                    plotOptions: {
                        line: {
                            dataLabels: {
                                enabled: true
                            },
                            enableMouseTracking:
                                false
                        }
                    },
                    series: <?=$json_encode($series)
                });
            </script>
        </div>
    </div>

```



SEKOLAH TINGGI MANAJEMEN INFORMATIKA DAN KOMPUTER STMIK ROYAL

Jl. Prof. H M. Yamin No. 173 Telp. 0623 - 41079, Fax. 0623 - 42366 Kisaran, Kab Asahan, Prov. Sumatera Utara - Indonesia
Website: www.royal.ac.id, homepage: www.stmikroyal.ac.id, e-mail: stmik@royal.ac.id

Kisaran, 19 Maret 2024

Nomor : 073-121/PP-00.10/STMIK-R/III/2024

Hal : Permohonan Riset

Kepada Yth,

Pemilik Nando Ponsel Kedai Ledang

di_

Tempat

Dengan Hormat,

Semoga Tuhan Yang Maha Esa senantiasa memberikan kemudahan bagi kita semua dalam menjalankan aktivitas sehari-hari.

STMIK Royal Kisaran sebagai salah satu perguruan tinggi penyelenggaraan program pendidikan Strata 1 (S1) dengan ini mengajukan permohonan kepada Bapak/Ibu agar kiranya dapat menerima Mahasiswa/I kami melaksanakan kegiatan Riset yang dilaksanakan pada tanggal 20 Maret 2024 - 20 April 2024. Berikut ini data mahasiswa yang akan melaksanakan Riset :

No	Nama Mahasiswa	Program Studi	L/P	NIM
1	Tio Desy Permata Sari Salim	Sistem Informasi-S1	L	20.22.0211

Adapun Tujuan dilaksanakannya Riset ini untuk Menyelesaikan Penulisan Skripsi Program Strata 1 (S1) STMIK Royal. Judul Skripsi : " *Sistem Informasi Prediksi Persediaan Penjualan Handphone pada Nando Ponsel dengan Metode Single Moving Average* ".

Demikian permohonan ini kami sampaikan. Atas perhatian, kesediaan, dan kerjasama yang baik kami ucapkan terima kasih.



Hormat Kami
Ketua,

Wan Mariatul Kifti, M.M.
NIDN. 0114057302



NANDO PONSEL

Jalan.Lintas Sumatera, Kelurahan. Kedai Ledang
Kecamatan. Kisaran Timur, Kabupaten. Asahan

Kisaran, 21 Maret 2024

No :-

Lamp :

Hal : Balasan Riset

Kepada Yth :

Sdr. Ketua STMIK Royal Kisaran

Di .

Tempat

Dengan Hormat,

Sehubungan dengan surat Program Pendidikan Strata 1 (S1) STMIK Royal Kisaran No 073-121/PP-00.10/STMIK-R/III/2024, perihal permohonan riset mahasiswa tanggal 19 Maret 2024, atas nama mahasiswa :

No	Nama	NIM	Program Studi
1	Tio Desy Permata Sari Salim	20.22.0211	Sistem Informasi

Dengan ini kami menerima mahasiswa saudara untuk melaksanakan riset di Nando Ponsel, sepanjang yang bersangkutan melaksanakan riset dapat mengikuti ketentuan dan peraturan yang berlaku.

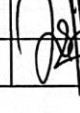
Demikian saya sampaikan dan dapat dimaklumi.





LEMBAR KONSULTASI SKRIPSI

Nama Mahasiswa : TIO DESY PERMATA SARI SALIM
NIM : 20220211
Program Studi : Sistem Informasi
Judul Skripsi/TA : SISTEM INFORMASI PREDIKSI PERSEDIAAN PENJUALAN HANDPHONE PADA
NANDO PONSEL DENGAN METODE SINGLE MOVING AVERAGE
Dosen Pembimbing : 1. MASITAH HANDAYANI, M.Kom
2. AKMAL, S.S., M.Hum
Lembar Konsultasi : Pembimbing 1
Tanggal Pertemuan Pertama : 20 Maret 2024

PERTEMUAN/ TANGGAL	MATERI BAHASAN	PARAF DOSEN	KETERANGAN
20-03-2024	Perbaiki latar belakang masalah dan batasan masalah yang ada pada BAB 1, sesuaikan dengan judul yang dibahas.		BAB I (Revisi)
29-04-2024	BAB 1 ACC, lanjut BAB 2		BAB I (ACC)
15-05-2024	Tambahkan teoritis metode SMA dan perangkat lunak yang digunakan.		BAB II (Revisi)
11-06-2024	ACC BAB 2, lanjut BAB 3		BAB II (ACC)
09-07-2024	Perbaiki uraian kerangka kerja penelitian dan tabel waktu penelitian		BAB III (Revisi)
26-07-2024	BAB 3 ACC, lengkapi cover s/d daftar lampiran untuk SEMPRO		BAB III (ACC)
14-08-2024	ACC BAB 1 s/d 3, ACC Semprom		Seminar Proposal (ACC)
18-09-2024	Perbaiki ASI Baru dan perancangan UML yang dibuat, sesuaikan dengan program		BAB IV (Revisi)
19-09-2024	ACC BAB IV, Lanjut BAB V		BAB IV (ACC)
26-09-2024	Tambahkan narasi sebelum gambar yang ada pada BAB V		BAB V (Revisi)
02-10-2024	BAB V ACC, Lanjut BAB VI		BAB V (ACC)
08-10-2024	ACC BAB VI, lengkapi cover s/d daftar pustaka		BAB VI (ACC)
11-10-2024	ACC Program Aplikasi		Pengujian Alat/Aplikasi (ACC)
11-10-2024	ACC Seminar Hasil		Seminar Hasil (ACC)
15-11-2024	ACC Sidang Meja Hijau		Sidang Meja Hijau (ACC)

Kisaran, 15 November 2024

Ka. Prodi Sistem Informasi



Nurwati, M.Kom.
NIDN: 0101068701



LEMBAR KONSULTASI SKRIPSI

Nama Mahasiswa : TIO DESY PERMATA SARI SALIM
NIM : 20220211
Program Studi : Sistem Informasi
Judul Skripsi/TA : SISTEM INFORMASI PREDIKSI PERSEDIAAN PENJUALAN HANDPHONE PADA
NANDO PONSEL DENGAN METODE SINGLE MOVING AVERAGE
Dosen Pembimbing : 1. MASITAH HANDAYANI, M.Kom
2. AKMAL, S.S., M.Hum
Lembar Konsultasi : Pembimbing 2
Tanggal Pertemuan Pertama : 20 Maret 2024

PERTEMUAN/ TANGGAL	MATERI BAHASAN	PARAF DOSEN	KETERANGAN
20-03-2024	Silahkan diperbaiki tulisan Bab 1		BAB I (Revisi)
30-04-2024	Lanjutkan untuk menulis Bab 2		BAB I (ACC)
14-05-2024	Silahkan diperbaiki tulisan Bab 2		BAB II (Revisi)
06-06-2024	Silahkan dilanjutkan tulisan ke Bab 3		BAB II (ACC)
18-06-2024	Silahkan diperbaiki tulisan Bab 3		BAB III (Revisi)
10-07-2024	Silahkan meengkapi berkas untuk Seminar Hasil		BAB III (ACC)
13-08-2024	Silahkan mendaftar dan mengikuti Ujian Seminar Hasil		Seminar Proposal (ACC)
19-09-2024	Perbaiki tulisan Bab 4		BAB IV (Revisi)
20-09-2024	Silahkan melanjutkan tulisan Bab 5		BAB IV (ACC)
27-09-2024	Perbaiki tulisan Bab 5		BAB V (Revisi)
03-10-2024	Silahkan melanjutkan tulisan Bab 6		BAB V (ACC)
09-10-2024	Silahkan melengkapi untuk pengujian aplikasi		BAB VI (ACC)
14-10-2024	Silahkan melengkapi untuk Seminar Hasil		Pengujian Alat/Aplikasi (ACC)
15-10-2024	Silahkan mengikuti Ujian Seminar Hasil		Seminar Hasil (ACC)
18-11-2024	Silahkan mengikuti Ujian Sidang Meja Hijau		Sidang Meja Hijau (ACC)

Kisaran, 26 November 2024

Ka. Prodi Sistem Informasi



Nurwati, M.Kom.
NIDN: 0101068701

DAFTAR RIWAYAT HIDUP

A. Identitas Pribadi

Nama Lengkap : Tio Desy Permata Sari Salim

Tempat/tanggal lahir : Kisaran, 11 Desember 2002

Jenis Kelamin : Perempuan

Agama : Buddha

Negara : Indonesia

Alamat : Jl. Gatot Subroto, Kel. Kedai Ledang, Kec.
Kisaran Timur

B. Riwayat Pendidikan

1. SD SWASTA DIPONEGORO KISARAN (2009 – 2014)
2. SMP SWASTA DIPONEGORO KISARAN (2014 – 2017)
3. SMA SWASTA DIPONEGORO KISARAN (2017 – 2020)
4. UNIVERSITAS ROYAL ASAHAN (2020 - 2025)

Demikianlah daftar riwayat hidup ini diperbuat dengan sebenarnya.

**UNIVERSITAS
ROYAL**

Kisaran, 15 Januari 2025

TIO DESY PERMATA
SARI SALIM
NIM: 20.22.0211