

DAFTAR PUSTAKA

- [1] I. Solikin *et al.*, “Aplikasi Forecasting Stok Barang Menggunakan Metode Weighted Moving Average (WMA) pada Metrojaya Komputer,” vol. 04, no. 02, pp. 100–105, 2020, doi: 10.30591/jpit.v4i2.1373.
- [2] J. Media and I. Budidarma, “Implementasi Sistem Peramalan Persediaan Barang Menggunakan Metode Moving Average,” vol. 4, pp. 707–714, 2020, doi: 10.30865/mib.v4i3.2199.
- [3] Z. Silvy, A. Zakir, D. Irwan, P. Studi, S. Informasi, and U. H. Medan, “PENERAPAN METODE WEIGHTED MOVING AVERAGE UNTUK PERAMALAN,” vol. 8, no. 2, pp. 59–64, 2021.
- [4] C. I. Nulhakim, M. A. Londa, and M. Radja, “Rancang Bangun Sistem Informasi Peramalan Penjualan Barang Menggunakan Metode Weighted Moving Average (Studi Kasus Pada Cv.Oliver Ende),” *Jsistek J. Sist. Inf. Dan Teknol.*, vol. 2, no. 1, pp. 19–25, 2024, doi: 10.37478/jsistek.v2i1.3754.
- [5] Fitri Ayu and Nia Permatasari, “perancangan sistem informasi pengolahan data PKL pada divisi humas PT pegadaian,” *J. Infra tech*, vol. 2, no. 2, pp. 12–26, 2021
- [6] S. Ani Arnomo, “Computer Based Information System Journal SISTEM INFORMASI INVENTORY BERBASIS WEB MENGGUNAKAN METODE OOAD PADA PT BGA,” *Cbis J.*, vol. 12, no. 01, pp. 63–72, 2024,
- [7] S. Monalisa, M. Afriani, F. Kurnia, and M. Hartati, “Sistem Informasi Peramalan Penjualan Dengan Menggunakan Metode Weighted Moving Average,” no. November, pp. 309–316, 2022.
- [8] S. Wardah, “KEMASAN BUNGKUS (Studi Kasus : Home Industry Arwana Food Tembilahan),” 2020.
- [9] I. D. Palandeng, F. Ekonomi, and J. Manajemen, “SEPEDA MOTOR SUZUKI PADA PT SINAR GALESONG MANDIRI MALALAYANG ANALYSIS OF SALES FORECAST AND INVENTORY FOR SUZUKI MOTORCYCLE PRODUCTS AT PT SINAR GALESONG MANDIRI

- MALALAYANG,” vol. 6, no. 4, pp. 2828–2837, 2019.
- [10] M. A. Maricar, “Analisa Perbandingan Nilai Akurasi Moving Average dan Exponential Smoothing untuk Sistem Peramalan Pendapatan pada Perusahaan XYZ,” pp. 36–45, 2020.
 - [11] E. Y. Nugraha, “Analisis Metode Peramalan Permintaan Terbaik Produk Oxycan pada PT . Samator Gresik,” pp. 8–9, 2022.
 - [12] I. Setiawan, “Rancang Bangun Aplikasi Peramalan Persediaan Stok Barang Menggunakan Metode Weighted Moving Average (Wma) Pada Toko Barang Xyz,” *J. Tek. Inform. Vol. 13, No. 3, Agustus 2021*, vol. 13, no. 3, pp. 1–9, 2021.
 - [13] F. R. Giarti *et al.*, “Sistem Prediksi Menggunakan Metode Weighted Moving Average Untuk Penentuan Jumlah Order Barang,” vol. 16, no. 2, pp. 37–42, 2023.
 - [14] C. Baktiar, A. Wibowo, and R. Adipranata, “Pembuatan Sistem Peramalan Penjualan Dengan Metode Weighted Moving Average dan Double Exponential Smoothing Pada UD Y,” pp. 1–5, 2024.
 - [15] D. A. Pratama, S. Hidayati, E. Suroso, and D. Sartika, “Analisis Peramalan Permintaan dan Pengendalian Persediaan Bahan Baku Pembantu pada Industri Gula (Studi Kasus PT . XYZ Lampung Utara) Analysis Forecasting Dem & Control of Supply Raw Materials In The Sugar Industry (Case Study of PT . XYZ North Lampun,” vol. 20, no. 2, pp. 148–160, 2022.
 - [16] A. Hendini, “Pemodelan Uml Sistem Informasi Monitoring Penjualan Dan Stok Barang,” *J. Khatulistiwa Inform.*, vol. 2, no. 9, pp. 107–116, 2020, doi: 10.1017/CBO9781107415324.004.
 - [17] A. Ismail, F. Sumarsono, Nuryana, and T. Kurniawan, “Perancangan Website Data Karyawan Dengan menggunakan PHP dan MYSQL,” *J. Sist. basis data*, no. January, pp. 1–8, 2019.
 - [18] W. Lu *et al.*, “Msql+,” *Proc. VLDB Endow.*, vol. 11, no. 12, pp. 1970–1973, 2021, doi: 10.14778/3229863.3236237.
 - [19] H. S. Medi Irawan, Hendrayudi, “Membangun Website Taman Rekreasi pondok Pangkul Menggunakan Php Dan Mysql,” *J. Tek. Inform.*

Mahakarya, vol. Vol.4 No.1, no. 1, p. 19, 2021.

- [20] M. Average and E. Smoothing, “PERAMALAN PERMINTAAN PAVING MENGGUNAKAN METODE,” vol. 03, no. 01, pp. 14–18, 2021.
- [21] A. Palmitraazzah and O. Juwita, “Sistem Perencanaan Dan Peramalan Distribusi Produk Berdasarkan Jumlah Permintaan Menggunakan Metode Weight Moving Average,” vol. 2, no. 1, pp. 45–53, 2020.
- [22] R. Y. Hayuningtyas and T. Informatika, “PERAMALAN PERSEDIAAN BARANG MENGGUNAKAN METODE WEIGHTED MOVING AVERAGE DAN METODE DOUBLE EXPONENTIAL,” vol. 13, no. 2, pp. 217–222, 2017.

LISTING PROGRAM

1. Konfigurasi Program ke Database

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

2. Tampilan Halaman Utama

```
<?php

include 'functions.php';

//if(empty($_SESSION[login]))

//header("location:login.php");

?>

<!DOCTYPE html>

<html lang="en">

<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="assets/images/logo/logo.png" />

    <title>Analisis Metode Weighted Moving Average Dalam Peramalan
    Penjualan Kacamata di Optik Mutiara </title>
```

```
<link href="assets/css/bootstrap.min.css" rel="stylesheet" />
```

```
<link href="assets/css/bootstrap.css" rel="stylesheet" />
```

```
<link href="assets/css/general.css" rel="stylesheet" />
```

```
<!-- <datatables> -->
```

```

<link          href="assets/datatables/css/dataTables.bootstrap.min.css"
rel="stylesheet"/>

```

```

<link          rel="stylesheet"          type="text/css"
href="assets/datatables/css/responsive.bootstrap.min.css">

```

```
<!-- End Datatables -->
```

```
<script src="assets/js/jquery.min.js"></script>
```

```
<script src="assets/js/bootstrap.min.js"></script>
```

```
<style type="text/css">
```

```
@font-face {
```

```
font-family: tulisan_keren;
```

```
src: url(assets/fonts/PatrickHand-Regular.ttf);
```

```
}
```

```
.font-website{
```

```
font-family: 'tulisan_keren';
```

```
font-size: 12pt;
```

```
}
```

```

</style>

</head>

<body style="background-image: url('assets/images/bg.jpg'); background-
size: cover;">

<nav class="navbar navbar-default navbar-static-top">
  <div class="container-fluid">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle collapsed" data-
toggle="collapse" data-target="#navbar" aria-expanded="false" aria-
controls="navbar">
        <span class="sr-only">Toggle navigation</span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
      </button>

      <div class="hidden-xs">
        <a class="navbar-brand" <?=( $mod=='home' ) ? 'active' : "">
href=""><span> OPTIK MUTIARA</span></a>
      </div>

      <div class="hidden-lg hidden-md hidden-sm">

```

```

        <a class="navbar-brand" <?=( $mod=='home') ? 'active' : ""?>"
href=""?><span> OPTIK MUTIARA</span></a>

```

```

    </div>

```

```

</div>

```

```

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

```

```

    <ul class="nav navbar-nav navbar-right">

```

```

        <?php if ( $_SESSION['level']=='admin') : ?>

```

```

            <li class="<?=( $mod=='jeniskacamata') ? 'active' : ""?>"><a
href="?m=jeniskacamata"> Jenis Kacamata</a></li>

```

```

            <li class="<?=( $mod=='periode') ? 'active' : ""?>"><a
href="?m=periode">
Periode</a></li>

```

```

            <li class="<?=( $mod=='hitung') ? 'active' : ""?>"><a
href="?m=hitung">
Peramalan WMA Penjualan Kacamata</a></li>

```

```

            <li class="<?=( $mod=='hasil') ? 'active' : ""?>"><a
href="?m=hasil"> Hasil
Peramalan</a></li>

```

```

            <li class="<?=( $mod=='password') ? 'active' : ""?>"><a
href="?m=password">
Ganti
Password</a></li>

<li class="<?=( $mod=='logout') ? 'active' : ''?"><a
href="aksi.php?act=logout"> Logout</a></li>

<?php endif ?>

<?php if ( $_SESSION['level']=='pemilik') : ?>

<li class="<?=( $mod=='hitung') ? 'active' : ''?"><a
href="?m=hitung">
Peramalan WMA Penjualan Kacamata</a></li>

<li class="<?=( $mod=='hasil') ? 'active' : ''?"><a
href="?m=hasil"> Hasil
Peramalan</a></li>

<li class="<?=( $mod=='password') ? 'active' : ''?"><a
href="?m=password"> Password</a></li>

<li class="<?=( $mod=='logout') ? 'active' : ''?"><a
href="aksi.php?act=logout"> Logout</a></li>

<?php endif ?>

```

```

<?php if ($_SESSION['level']==") : ?>

    <li    class="<?=( $mod=='login')    ?    'active'    :    "?">"><a
href="?m=login">
Login</a></li>

    <?php endif ?>

</ul>
</div>
</div>
</nav>

<div class="container-fluid">

    <?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>

<footer class="footer bg-primary">

```

```

<div class="container text-center">

    <p>Copyright &copy; <? = date('Y') ?> </p>

</div>

</footer>

<script type="text/javascript">

    $('form-control').attr('autocomplete', 'off');

</script>

<!-- <SCRIPT DATATABLES> -->

    <script                                     type="text/javascript"
src="assets/datatables/js/jquery.dataTables.min.js"></script>

    <script                                     type="text/javascript"
src="assets/datatables/js/dataTables.bootstrap.min.js"></script>

    <script                                     type="text/javascript"
src="assets/datatables/js/dataTables.responsive.min.js"></script>

    <script type="text/javascript">

        $(document).ready(function() {

            $('#datatables').DataTable({

                responsive: true

            });

        });

    </script>

```

```

<!-- END SCRIPT DATATABLES -->

</body>

</html>

```

3. Tampilan Halaman Login

```

<div class="col-md-4 col-sm-offset-4">

  <div class="panel panel-primary">

    <div class="panel-heading">

      <strong>Login</strong>

    </div>

    <div class="panel-body">

      <?php if ($_POST) include 'aksi.php' ?>

      <form method="post">

        <div class="form-group">

          <input      class="form-control"      input-sm"      type="text"
placeholder="Username" name="user" autofocus="" />

        </div>

        <div class="form-group">

          <input      class="form-control"      input-sm"      type="password"
placeholder="Password" name="pass" />

        </div>

        <div class="form-group text-right ">

```

```

        <button class="btn btn-primary btn-sm"><span
class="glyphicon glyphicon-log-in"></span> Login</button>

    </div>

</form>

</div>

</div>
</div>

```

4. Tampilan Halaman Jenis Kacamata

```

<div class="row">
    <div class="col-sm-4">
        <?php include "jeniskacamata_tambah.php"; ?>
    </div>

    <div class="col-sm-8">
        <div class="panel panel-primary">
            <div class="panel-heading">
                <strong>Data Jenis Kacamata</strong>
            </div>
            <div class="panel-body">
                <table id="datatables" class="table table-bordered table-hover
table-striped table-condensed" width="100%">
                    <thead>
                        <tr>
                            <th>Kode</th>
                            <th>Nama Jenis Kacamata</th>
                            <th>Aksi</th>
                        </tr>
                    </thead>
                    <?php
                    $q = esc_field($_GET['q']);
                    $rows = $db->get_results("SELECT * FROM
tb_jeniskacamata WHERE nama_jeniskacamata LIKE '%$q%' ORDER
BY kode_jeniskacamata");
                    $no = 0;
                    foreach ($rows as $row) : ?>
                        <tr>
                            <td><?=$row->kode_jeniskacamata ?></td>

```

```
 <?= $row->nama_jeniskacamata ?></td>   | |
```

5. Tampilan Halaman Periode

```

<div class="row">
<div class="col-sm-4">
<?php include "periode_tambah.php"; ?>
</div>

<div class="col-sm-8">
<div class="panel panel-primary">
<div class="panel-heading">
<strong>Data Periode</strong>
</div>
<div class="panel-body">
<table id="datatables" class="table table-bordered table-hover table-
striped table-condensed" width="100%">
<thead>
<tr>
<th>No</th>
<th>Nama Periode</th>
<th>Tanggal Kadaluarsa</th>
<?php foreach ($JENISKACAMATA as $key => $val) : ?>
<th><?= $val ?></th>
<?php endforeach ?>
<th>Aksi</th>
</tr>
</thead>
<?php
$rows = $db->get_results("SELECT * FROM tb_periode ORDER
BY tanggal ASC");

```

```

$no = 0;

$analisa = get_data();

//echo '<pre>' . print_r($analisa, 1) . '</pre>';
foreach ($rows as $row) : ?>
    <tr>
        <td><?= $row->kode_periode ?></td>
        <!-- <td><?= $row->tanggal ?></td> -->
        <td><?= date('M-Y', strtotime($row->tanggal)) ?></td>
        <td><?= date('M-Y', strtotime($row->tanggal_kadaluarsa))
?></td>
        <?php foreach ($analisa[$PERIODE[$row->kode_periode]] as
$k => $v) : ?>
            <td><?= $v ?></td>
        <?php endforeach ?>
        <td>
            <a class="btn btn-xs btn-warning"
href="?m=periode_ubah&ID=<?= $row->kode_periode ?>"><span
class="glyphicon glyphicon-edit"></span> Ubah</a>
            <a class="btn btn-xs btn-danger"
href="aksi.php?act=periode_hapus&ID=<?= $row->kode_periode ?>"
onclick="return confirm('Hapus data?')"><span class="glyphicon glyphicon-
trash"></span> Hapus</a>
        </td>
    </tr>
<?php endforeach; ?>
</table>
</div>
</div>
</div>
</div>

```

6. Data Perhitungan WMA

```

<?php
$success = false;
$awal = $db->get_var("SELECT MIN(tanggal) FROM tb_periode");
$akhir = $db->get_var("SELECT MAX(tanggal) FROM tb_periode");

if ($_POST) {
    $awal = $_POST['awal'];
    $akhir = $_POST['akhir'];
    $next_periode = $_POST['next_periode'];
    $n_periode = $_POST['n_periode'];
    $kode_jeniskacamata = $_POST['kode_jeniskacamata'];

    $count = $db->get_var("SELECT COUNT(*) FROM tb_periode");

```

```

if ($kode_jeniskacamata == "") {
    print_msg("Pilih Jenis Kacamata");
}
else if ($n_periode < 2 || $n_periode > $count) {
    print_msg("Isikan next periode antara 2 dan $count");
} else if ($next_periode == "") {
    print_msg('Isikan next periode');
} elseif ($next_periode <= $max_periode) {
    print_msg('Masukkan periode minimal ' . ($max_periode + 1));
} else {
    $success = true;
}
$_SESSION['POST'] = $_POST;
}
?>

<form method="post">
    <div class="panel panel-primary">
        <div class="panel-heading">
            <h3 class="panel-title"><strong>Masukkan
periode</strong></h3>
        </div>
        <div class="panel-body">
            <div class="form-group">
                <label>Rata-Rata Bergerak <span class="text-
danger">*</span></label>
                <input class="form-control input-sm" type="number"
name="n_periode" value="<?= set_value('n_periode', 3) ?>" />
            </div>
            <div class="form-group">
                <label>Awal <span class="text-danger">*</span></label>
                <input class="form-control input-sm" type="date" name="awal"
value="<?= set_value('awal', $awal) ?>" />
            </div>
            <div class="form-group">
                <label>Akhir <span class="text-danger">*</span></label>
                <input class="form-control input-sm" type="date" name="akhir"
value="<?= set_value('akhir', $akhir) ?>" />
            </div>
            <div class="form-group">
                <label>Jenis Kacamata <span class="text-
danger">*</span></label>
                <select class="form-control input-sm"
name="kode_jeniskacamata">
                    <?= get_jeniskacamata_option(set_value('kode_jeniskacamata'))
?>
                </select>
            </div>
        </div>
    </div>
</form>

```

```

    </div>
    <div class="form-group">
        <label>Next Periode <span class="text-danger">*</span></label>
        <input class="form-control input-sm" type="number"
name="next_periode" value="<?= set_value('next_periode', 3) ?>" />
    </div>
    <div class="form-group text-right">
        <button class="btn btn-primary btn-sm"><span class="glyphicon
glyphicon-signal"></span> Hitung</button>
    </div>
</div>
</form>
<?php
$c = $db->get_results("SELECT * FROM tb_penjualan WHERE nilai <
0");
if (!$PERIODE || !$JENISKACAMATA) :
    echo "Tampaknya anda belum mengatur periode dan jenis kacamata.
Silahkan tambahkan minimal 3 periode dan 3 jenis kacamata.";
elseif ($c) :
    echo "Tampaknya anda belum mengatur nilai periode. Silahkan atur
pada menu <strong>Nilai Periode</strong>.";
elseif ($success) :
    include 'hitung_hasil.php';
    $_SESSION['post'] = $_POST;
endif ?>

```

7. Data Hasil Perhitungan WMA

```

<?php

$analisa = get_analisa($kode_jeniskacamata, $awal, $akhir);

$db->query("DELETE          FROM          tb_hasil          WHERE
kode_jeniskacamata='$kode_jeniskacamata'");

foreach ($analisa as $key_jeniskacamata => $val_jeniskacamata) :

    $wma = new WMA($val_jeniskacamata, $next_periode, $n_periode);

    foreach ($wma->fx as $key => $val) {
        $db->query("INSERT INTO tb_hasil (kode_jeniskacamata, periode,
aktual, ft, mse, mad, mape) VALUES ('$kode_jeniskacamata', '$key',
'{$wma->y[$key]}', '$val', '{$wma->error['MSE']}', '{$wma->error['MAE']}',
'{$wma->error['MAPE']}')");
    }
    // echo '<pre>' . print_r($wma, 1) . '</pre>';

```

```

$categories = array();
$series = array();
?>

<div class="panel panel-primary">
    <div class="panel-heading">
        <h3 class="panel-title"><a data-toggle="collapse" href="#c_<?=$key_jeniskacamata
$JENISKACAMATA[$key_jeniskacamata] ?>"><strong><?=$key_jeniskacamata ?>">
    </div>
    <div class="table-responsive collapse in" id="c_<?=$key_jeniskacamata ?>">
        <div class="panel-body">
            <table class="table-bordered table-hover table-bordered table-striped table-condensed">
                <thead>
                    <tr>
                        <th>Periode (bulan)</th>
                        <th>Y</th>
                        <th>Fx</th>
                        <th>Error</th>
                        <th>Abs Error</th>
                        <th>Error<sup>2</sup></th>
                        <th>APE(%) </th>
                    </tr>
                </thead>
                <?php
                    foreach ($val_jeniskacamata as $key => $val) :
                        $aktual[date('Y', strtotime($key))] += $val;
                        $prediksi[date('Y', strtotime($key))] += $wma->fx[$key];

                        $categories[$key] = date('M-Y', strtotime($key));
                        $series['aktual']['data'][$key] = $val * 1;
                        $series['prediksi']['data'][$key] = round($wma->fx[$key], 2);
                    ?>

                    <tr>
                        <td><? = date('M-Y', strtotime( $key)) ?></td>
                        <td><? = number_format($val) ?></td>
                        <td><? = number_format($wma->fx[$key], 2) ?></td>
                        <td><? = number_format($wma->et[$key], 2) ?></td>
                        <td><? = number_format($wma->et_abs[$key], 2) ?></td>
                        <td><? = number_format($wma->et_square[$key], 2) ?></td>
                        <td><? = number_format($wma->et_yt[$key], 2) ?></td>
                    </tr>
                <?php endforeach ?>
            </tr>

```

```

        <td colspan="4" class="text-right">MAE (Mean Absolute
Error)</td>
        <td><?= number_format($wma->error['MAE'], 2) ?></td>
        <td>&nbsp;</td>
        <td>&nbsp;</td>
    </tr>
    <tr>
        <td colspan="4" class="text-right">MSE (Mean Squared
Error)</td>
        <td>&nbsp;</td>
        <td><?= number_format($wma->error['MSE'], 2) ?></td>
        <td>&nbsp;</td>
    </tr>
    <tr>
        <td colspan="4" class="text-right">RMSE (Root Mean Squared
Error)</td>
        <td>&nbsp;</td>
        <td><?= number_format($wma->error['RMSE'], 2) ?></td>
        <td>&nbsp;</td>
    </tr>
    <tr>
        <td colspan="4" class="text-right">MAPE (Mean Absolute
Percentage Error)</td>
        <td>&nbsp;</td>
        <td>&nbsp;</td>
        <td><?= number_format($wma->error['MAPE'], 2) ?> % </td>
    </tr>
</table>

```

Hasil Prediksi:

```

<table class="table table-bordered table-hover table-bordered table-
striped table-condensed">
    <thead>
        <tr>
            <th>Periode (bulan)</th>
            <th>Fx (Peramalan)</th>
            <th>Fx (Peramalan) * MAPE</th>
            <th>Minimum</th>
            <th>Maximum</th>
        </tr>
    </thead>
    <?php foreach ($wma->next_fx as $key => $val) :
        $db->query("INSERT INTO tb_hasil (kode_jeniskacamata,
periode, aktual, ft, mse, mad, mape) VALUES ('$kode_jeniskacamata', '$key',
NULL, '$val', '{$wma->error['MSE']}', '{$wma->error['MAE']}', '{$wma-
>error['MAPE']}')");
        $categories[$key] = date('M-Y', strtotime($key));
        $series['aktual']['data'][$key] = null;
    </?php>

```

```

$series['prediksi']['data'][$key] = round($val, 2); ?>
<tr>
  <td><?= date('M-Y', strtotime( $key))?></td>
  <td><?= number_format($val, 2) ?></td>
  <td><?=
    round(number_format($val, 2)
    (number_format($wma->error['MAPE'], 2) / 100), 2)?></td>
  <td><?=
    round(number_format($val, 2)
    round(number_format($val, 2) * (number_format($wma->error['MAPE'], 2)
    / 100), 2), 2) ?></td>
  <td><?=
    round(number_format($val, 2)
    round(number_format($val, 2) * (number_format($wma->error['MAPE'], 2)
    / 100), 2), 2) ?></td>
</tr>
<?php endforeach ?>
</table>
</div>
</div>

<div class="panel-body">
  <script src="assets/js/highcharts.js"></script>
  <script src="assets/js/modules/exporting.js"></script>
  <script src="assets/js/modules/export-data.js"></script>
  <script src="assets/js/modules/accessibility.js"></script>
  <style>
    .highcharts-credits {
      display: none;
    }
  </style>
  <div id="container_<?= $key_jeniskacamata ?>"></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']);
      $series = array_values($series);
    ?>
    Highcharts.chart('container_<?= $key_jeniskacamata ?>', {
      chart: {
        type: 'line'
      },
      title: {
        text: 'Grafik Data dan Hasil Prediksi ' + '<?=
$JENISKACAMATA[$key_jeniskacamata] ?>'
      },
      // subtitle: {
      //   text: 'Source: WorldClimate.com'
    }
  </script>

```

```

// },
xAxis: {
    categories: <?= json_encode($categories) ?>
},
yAxis: {
    title: {
        text: 'Total'
    }
},
plotOptions: {
    line: {
        dataLabels: {
            enabled: true
        },
        enableMouseTracking: false
    }
},
series: <?= json_encode($series) ?>
});
</script>
</div>
</div>
<?php endforeach;

// $db->query("TRUNCATE tb_hasil");
// $db->multi_query('tb_hasil', $fields);
?>
<a class="btn btn-default btn-block btn-sm" href="cetak.php?m=hitung"
target="_blank"><span class="glyphicon glyphicon-print"></span> Cetak
Hasil Peramalan</a>

```

8. Cetak Hasil Perhitungan

```

<table class="noborder">
<tr>
<br>
<td width="136" rowspan="3" align="center"></td>
<td width="883" align="center">&nbsp;</td>
<td width="26" rowspan="6">&nbsp;</td>
</tr>

<tr>
<td align="left">

```

```

        <span align="left" style="font-size:20px;"><strong>OPTIK
MUTIARA</strong></span><br>Jl. Diponegoro, Kisaran Kota, Kec. Kota
Kisaran Barat, Kabupaten Asahan, Sumatera Utara <br>
        Telp. 0813-6144-4176, Kode Pos. 21211, Website.
peramalanoptikmutiarawma.site
        <hr>
    </td>
</tr>
</table>

```

```

<?php
$_POST = $_SESSION['post'];
$tanggal = set_value('tanggal', date('Y-m-d'));
$awal = $_POST['awal'];
$akhir = $_POST['akhir'];
$next_periode = $_POST['next_periode'];
$n_periode = $_POST['n_periode'];
$kode_jeniskacamata = $_POST['kode_jeniskacamata'];

$count = $db->get_var("SELECT COUNT(*) FROM tb_periode");
// $data = get_data();
$analisa = get_analisa($kode_jeniskacamata, $awal, $akhir);

foreach ($analisa as $key_jeniskacamata => $val_jeniskacamata) :

    $wma = new WMA($val_jeniskacamata, $next_periode, $n_periode);

    $categories = array();
    $series = array();
    ?>

    <div class="panel panel-primary">
        <div class="panel-heading">
            <h3 class="panel-title"><a data-toggle="collapse" href="#c_<?=
$key_jeniskacamata ?>"><?= $JENISKACAMATA[$key_jeniskacamata]
?></a></h3>
        </div>
        <div class="table-responsive collapse in" id="c_<?=
$key_jeniskacamata ?>">
            <table class="table table-bordered table-hover table-bordered
table-striped" width="100%">
                <thead>
                    <tr>
                        <th>Periode (bulan)</th>
                        <th>Y</th>
                        <th>Fx</th>

```

```

        <th>Error</th>
        <th>Abs Error</th>
        <th>Error<sup>2</sup></th>
        <th>APE(%) </th>
    </tr>
</thead>

<?php foreach ($val_jeniskacamata as $key => $val) :

    $aktual = array();
    $prediksi = array();

    $aktual[date('Y', strtotime($key))] += $val;
    $prediksi[date('Y', strtotime($key))] += $wma->fx[$key];

    $categories[$key] = date('M-Y', strtotime($key));
    $series['aktual']['data'][$key] = $val * 1;
    $series['prediksi']['data'][$key] = round($wma->fx[$key], 2);
?>
    <tr>
        <td><?= date('M-Y', strtotime( $key)) ?></td>
        <td><?= number_format($val) ?></td>
        <td><?= number_format($wma->fx[$key], 2) ?></td>
        <td><?= number_format($wma->et[$key], 2) ?></td>
        <td><?= number_format($wma->et_abs[$key], 2) ?></td>
        <td><?= number_format($wma->et_square[$key], 2)
?></td>
        <td><?= number_format($wma->et_yt[$key], 2) ?></td>
    </tr>
<?php endforeach ?>
    <tr>
        <td colspan="4" class="text-right">MAE (Mean Absolute
Error)</td>
        <td><?= number_format($wma->error['MAE'], 2) ?></td>
        <td>&nbsp;</td>
        <td>&nbsp;</td>
    </tr>
    <tr>
        <td colspan="4" class="text-right">MSE (Mean Squared
Error)</td>
        <td>&nbsp;</td>
        <td><?= number_format($wma->error['MSE'], 2) ?></td>
        <td>&nbsp;</td>
    </tr>
    <tr>
        <td colspan="4" class="text-right">RMSE (Root Mean
Squared Error)</td>
        <td>&nbsp;</td>

```

```

        <td><?= number_format($wma->error['RMSE'], 2) ?></td>
        <td>&nbsp;</td>
    </tr>
    <tr>
        <td colspan="4" class="text-right">MAPE (Mean Absolute
Percentage Error)</td>
        <td>&nbsp;</td>
        <td>&nbsp;</td>
        <td><?= number_format($wma->error['MAPE'], 2) ?> %
    </td>
    </tr>
</table>
</div>
<div class="panel-body">
    Hasil Prediksi:
</div>
<div class="table-responsive">
    <table class="table table-bordered table-hover table-bordered
table-striped" width="100%">
        <thead>
            <tr>
                <th>Periode (bulan)</th>
                <th>Fx</th>
                <th>Fx (Peramalan) * MAPE</th>
                <th>Minimum</th>
                <th>Maximum</th>
            </tr>
        </thead>
        <?php foreach ($wma->next_fx as $key => $val) :
            $categories[$key] = date('M-Y', strtotime($key));
            $series['aktual']['data'][$key] = null;
            $series['prediksi']['data'][$key] = round($val, 2); ?>
            <tr>
                <td><?= date('M-Y', strtotime($key)) ?></td>
                <td><?= number_format($val) ?></td>
                <td><?=
                    round(number_format($val, 2)
(number_format($wma->error['MAPE'], 2) / 100), 2)?></td>
                    *
                <td><?=
                    round(number_format($val, 2)
round(number_format($val, 2) * (number_format($wma->error['MAPE'],
2) / 100), 2), 2) ?></td>
                    -
                <td><?=
                    round(number_format($val, 2)
round(number_format($val, 2) * (number_format($wma->error['MAPE'],
2) / 100), 2), 2) ?></td>
                    +
            </tr>
        </tbody>
    </table>
</div>
<div class="panel-body">

```

```

<script src="assets/js/highcharts.js"></script>
<script src="assets/js/modules/exporting.js"></script>
<script src="assets/js/modules/export-data.js"></script>
<script src="assets/js/modules/accessibility.js"></script>
<div id="container_<?= $key_jeniskacamata ?>"></div>
<style>
    .highcharts-credits {
        display: none;
    }
</style>
<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']);
        $series = array_values($series);
    ?>
    Highcharts.chart('container_<?= $key_jeniskacamata ?>', {
        chart: {
            type: 'line'
        },
        title: {
            text: 'Grafik Data dan Hasil Prediksi ' + '<?=
$JENISKACAMATA[$key_jeniskacamata] ?>'
        },
        // subtitle: {
        //     text: 'Source: WorldClimate.com'
        // },
        xAxis: {
            categories: <?= json_encode($categories) ?>
        },
        yAxis: {
            title: {
                text: 'Total'
            }
        },
        plotOptions: {
            line: {
                dataLabels: {
                    enabled: true
                },
                enableMouseTracking: false
            }
        },
    },

```

```

        series: <?= json_encode($series) ?>
    });
</script>
</div>
</div>
<?php endforeach ?>

<br>
<br>

<table width=100% class="noborder">
<tr>
<td colspan="2"></td>
<td width="286"></td>
</tr>
<tr>
<td width="230" align="center"> <br>
</td>
<td width="530"></td>
<td align="center"><strong>Kisaran, <?= tgl_indo($tanggal); ?>
</strong><br>
    Pemilik</td>
</tr>
<tr>
<td align="center"><br /><br /><br /><br /><br />
<br /><br /><br /></td>
<td>&nbsp;</td>
<td align="center" valign="top"><br /><br /><br /><br /><br />
    ( ..... )<br />
</td>
</tr>
<tr>
<td colspan="2">&nbsp;</td>
<td>&nbsp;</td>
</tr>
</table>

```

9. Password

```

<div class="row">
<div class="col-sm-4 col-sm-offset-4">
<div class="panel panel-primary">
<div class="panel-heading">
<strong>Ganti Password</strong>
</div>
<div class="panel-body">

```

```

        <?php if ($_POST) include 'aksi.php' ?>
        <form method="post">
            <div class="form-group">
                <label>Password Lama <span class="text-
danger">*</span></label>
                <input class="form-control input-sm" type="password"
name="pass1" />
            </div>
            <div class="form-group">
                <label>Password Baru <span class="text-
danger">*</span></label>
                <input class="form-control input-sm" type="password"
name="pass2" />
            </div>
            <div class="form-group">
                <label>Konfirmasi Password Baru <span class="text-
danger">*</span></label>
                <input class="form-control input-sm" type="password"
name="pass3" />
            </div>
            <div class="form-group text-right">
                <button class="btn btn-primary btn-sm"><span
class="glyphicon glyphicon-save"></span> Simpan</button>
            </div>
        </form>
    </div>
</div>
</div>

```

10. Logout

```

elseif ($act == 'logout') {
    unset($_SESSION['login'], $_SESSION['level']);
    header("location:index.php?m=login");
}

```



**UNIVERSITAS
ROYAL**

SK Mendikbud Ristek No : 386/E/O/2024

Nomor: 3. Prof. HM. Yenni S.P., No. 02, Klaten,
Kab. Boyal, Prov. Sumatera Utara Indonesia, 21224

Telp. 0821 - 41279 Fax. 0821 - 41296 Email

Kisaran, 08 Oktober 2024

Nomor : 199-014/PP-00.10/U/R/X/2024

Hal : Permohonan Riset

Kepada Yth,

Pemilik Optik Mutiara Kisaran

di

Tempat

Dengan Hormat,

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

Universitas Royal 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 09 Oktober 2024 - 09 November 2024. Berikut ini data mahasiswa yang akan melaksanakan Riset :

No	Nama Mahasiswa	Program Studi	L/P	NIM
1	Muhammad Fakhru Roji	Sistem Informasi-S1	L	20.22.0117

Adapun Tujuan dilaksanakannya Riset ini untuk Menyelesaikan Penulisan Skripsi Program Strata 1 (S1) Universitas Royal. Judul Skripsi : "*Analisis Metode Weighted Moving Average dalam Peramalan Penjualan Kacamata di Optik Mutiara*".

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



Wati Mariatul Kifti, M.M.
NIDN. 0114057302

Tembusan :
- Arsip

OPTIK MUTIARA

Alamat Jl. Diponegoro Kec. Kisaran Barat, Kisaran Kota

Kisaran Barat, 13 Oktober 2024

Hal : Surat Balasan Permohonan Izin Riset

Kepada Yth,

Ketua Stmik Royal

Kisaran,

Di_

Tempat

Dengan Hormat,

Sehubung dengan kami terima surat permohonan izin dari stmik royal kisaran perihal izin melakukan penelitian dalam mencari informasi dan data pada perusahaan kami terkait dengan penyusunan skripsi, dengan ini kami menyetujui memberikan izin kepada :

Nama	Program Studi	NIM
Muhammad FakhruRoji	Sistem Informasi- SI	20220117

Demikian surat pemberitahuan ini kami sampaikan agar sekiranya bermanfaat dan sebagaimana mestinya. Atas perhatiannya kami ucapkan terima kasih.

Hormat kami

Pemilik Optik Mutiara


Junaidi





UNIVERSITAS ROYAL
FAKULTAS ILMU KOMPUTER
 PROGRAM STUDI SISTEM INFORMASI

Alamat: Jl. Raya Kertajaya, No. 101, Kertajaya, Kecamatan Kertajaya, Kabupaten Kediri, Jawa Timur 64111
 Telp. (085) 712 1234, Fax. (085) 712 1235, Email: info@ur.ac.id, website: www.ur.ac.id

LEMBAR KONSULTASI SKRIPSI

Nama Mahasiswa : MUHAMMAD FAKHROJROJI
 NIM : 20220117
 Program Studi : Sistem Informasi
 Judul Skripsi/TA : ANALISIS METODE WEIGHTED MOVING AVERAGE DALAM PERAMALAN PEJUALAN KACAMATA DI KISARAN OPTICAL
 Dosen Pembimbing : 1. ROLLY YESPUTRA, S.Kom, M.Kom
 2. AKMAL, S.S., M.Hum
 Lembar Konsultasi : Pembimbing 1
 Tanggal Pertemuan Pertama : 18 September 2024

PERTEMUAN/ TANGGAL	MATERI BAHASAN	PARAF DOSEN	KETERANGAN
18-09-2024	Perbaiki latar belakang, sesuaikan dengan catatan waktu bimbingan skripsi offline		BAB I (Revisi)
21-09-2024	ACC Bab 1, Lanjut Bab 2		BAB I (ACC)
23-09-2024	ACC Bab 2, Lanjut Bab 3		BAB II (ACC)
23-09-2024	ACC Bab III, Lanjut Seminar Proposal		BAB III (ACC)
23-09-2024	ACC Seminar Proposal		Seminar Proposal (ACC)
21-01-2025	Tambahkan data, kategorikan data lebih spesifik. Lebih detailkan langkah-langkah pengolahan data dengan metode yang digunakan.		BAB IV (Revisi)
01-02-2025	Perbaiki perhitungan manual dan desain UI		BAB IV (Revisi)
08-02-2025	ACC Bab 4, Lanjut program dan Bab 5		BAB IV (ACC)
15-02-2025	Lanjutkan test aplikasi		BAB V (ACC)
17-02-2025	ACC Bab 6, Lanjutkan test aplikasi		BAB VI (ACC)
18-02-2025	Perbaiki UI, Report dan check dan sesuaikan hasil perhitungan		Pengujian Alat/Aplikasi (Revisi)
20-02-2025	ACC aplikasi, lanjutkan seminar hasil		Pengujian Alat/Aplikasi (ACC)
20-02-2025	ACC Seminar Hasil		Seminar Hasil (ACC)
19-04-2025			Sidang Meja Hijau (ACC)

Kisaran, 20 Mei 2025.

Ka. Prodi Sistem Informasi



Nurwati, M.Kom.
 NIDN: 0101068701



UNIVERSITAS ROYAL
FAKULTAS ILMU KOMPUTER
 PROGRAM STUDI SISTEM INFORMASI

Office: Jln. Ring Road, No. 177, Teluk & Indah, 662141079, Tel. 021-1100000, Email: info@urid.ac.id, www.urid.ac.id

LEMBAR KONSULTASI SKRIPSI

Nama Mahasiswa : MUHAMMAD FAKHRUROJI
 NIM : 20220117
 Program Studi : Sistem Informasi
 Judul Skripsi/TA : ANALISIS METODE WEIGHTED MOVING AVERAGE DALAM PERAMALAN PEJUALAN KACAMATA DI KISARAN OPTICAL
 Dosen Pembimbing : 1. ROLLY YESPUTRA, S.Kom, M.Kom
 2. AKMAL, S.S., M.Hum
 Lembar Konsultasi : Pembimbing 2
 Tanggal Pertemuan Pertama : 20 September 2024

PERTEMUAN/ TANGGAL	MATERI BAHASAN	PARAF DOSEN	KETERANGAN
20-09-2024	Perbaiki tulisan Bab 1		BAB I (Revisi)
23-09-2024	Silahkan melanjutkan tulisan ke Bab 2		BAB I (ACC)
25-09-2024	Silahkan diperbaiki tulisan Bab 2		BAB II (Revisi)
27-09-2024	Silahkan melanjutkan tulisan ke Bab 3		BAB II (ACC)
30-09-2024	Silahkan diperbaiki tulisan Bab 3		BAB III (Revisi)
02-10-2024	Silahkan melengkapi berkas untuk ujian Seminar Proposal		BAB III (ACC)
07-10-2024	Silahkan daftar dan mengikuti Ujian Seminar Proposal		Seminar Proposal (ACC)
23-01-2025	Perbaiki tulisan Bab 4		BAB IV (Revisi)
31-01-2025	Silahkan melanjutkan tulisan ke Bab 5		BAB IV (ACC)
10-02-2025	Silahkan perbaiki tulisan Bab 5		BAB V (Revisi)
17-02-2025	Silahkan melanjutkan tulisan ke Bab 6		BAB V (ACC)
19-02-2025	Silahkan perbaiki tulisan Bab 6		BAB VI (Revisi)
20-02-2025	Silahkan melengkapi untuk Pengujian Alat/Aplikasi		BAB VI (ACC)
21-02-2025	Silahkan melengkapi berkas untuk Seminar Hasil		Pengujian Alat/Aplikasi (ACC)
22-02-2025	Silahkan mendaftar Ujian Seminar Hasil		Seminar Hasil (ACC)
19-04-2025	Silahkan mengikuti Ujian Sidang Meja Hijau		Sidang Meja Hijau (ACC)

Kisaran, 20 Mei 2025

Ka. Prodi Sistem Informasi



Nurwati, M.Kom,
 NIDN: 0101068701

RIWAYAT HIDUP



A. BIODATA DIRI

Nama : Muhammad FakhruRoji
 Nim : 20220117
 Tempat/Tanggal Lahir : Binjai Serbangan, 2 September
 2002
 Jenis Kelamin : Laki-Laki
 Agama : Islam
 Alamat : Siti Melati LK.VIII
 Nama Ayah : Edi Sumarlan
 Nama Ibu : Susi Yanti

B. DATA PENDIDIKAN

1. MADRASAH IBTIDAIYAH P. KHAIRUL MUKMININ 2008-2014
2. MADRASAH TSANAWIYAH P. KHAIRUL MUKMININ 2014 – 2017
3. SMA NEGERI 1 AIR JOMAN 2017 – 2020
4. UNIVERSITAS ROYAL 2020 - 2025

Demikian daftar riwayat hidup ini dibuat dengan sesungguhnya.

Kisaran, 22 Maret 2025

Muhammad FakhruRoji
Nim : 20.22.0117