

LAPORAN PRATIKUM 6

Mata Kuliah Pemograman Berorientasi Obyek



Disusun Oleh :

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PROGRAM STUDI D4 MANAJEMEN INFORMATIKA

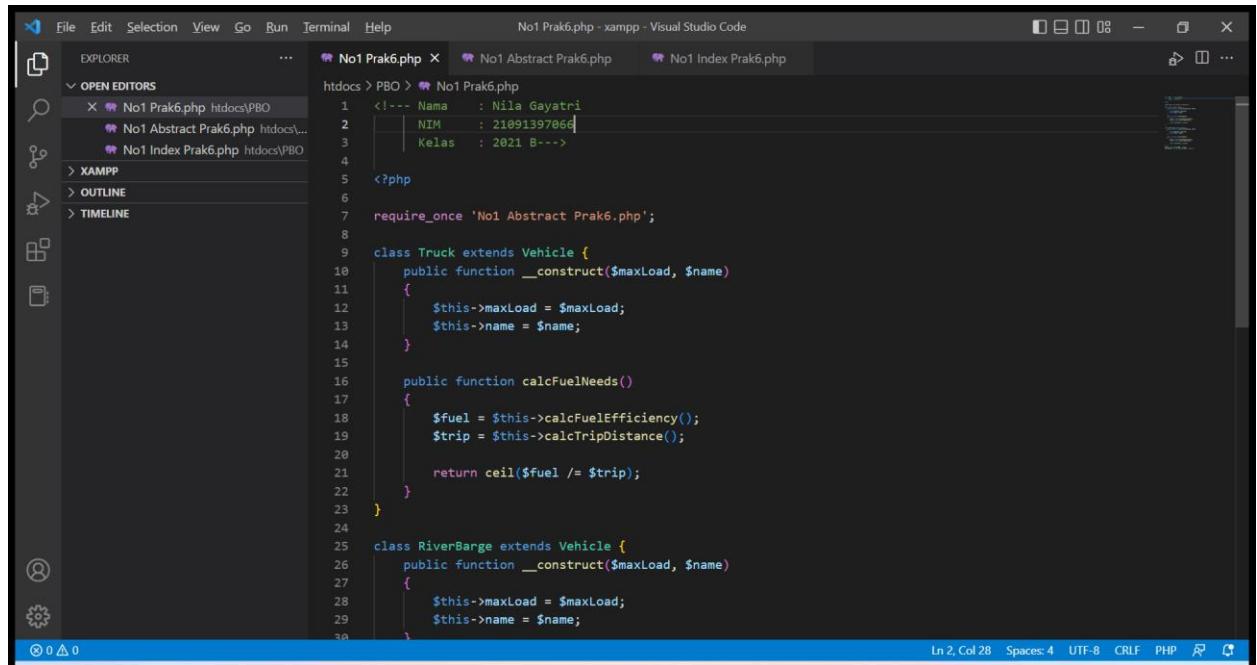
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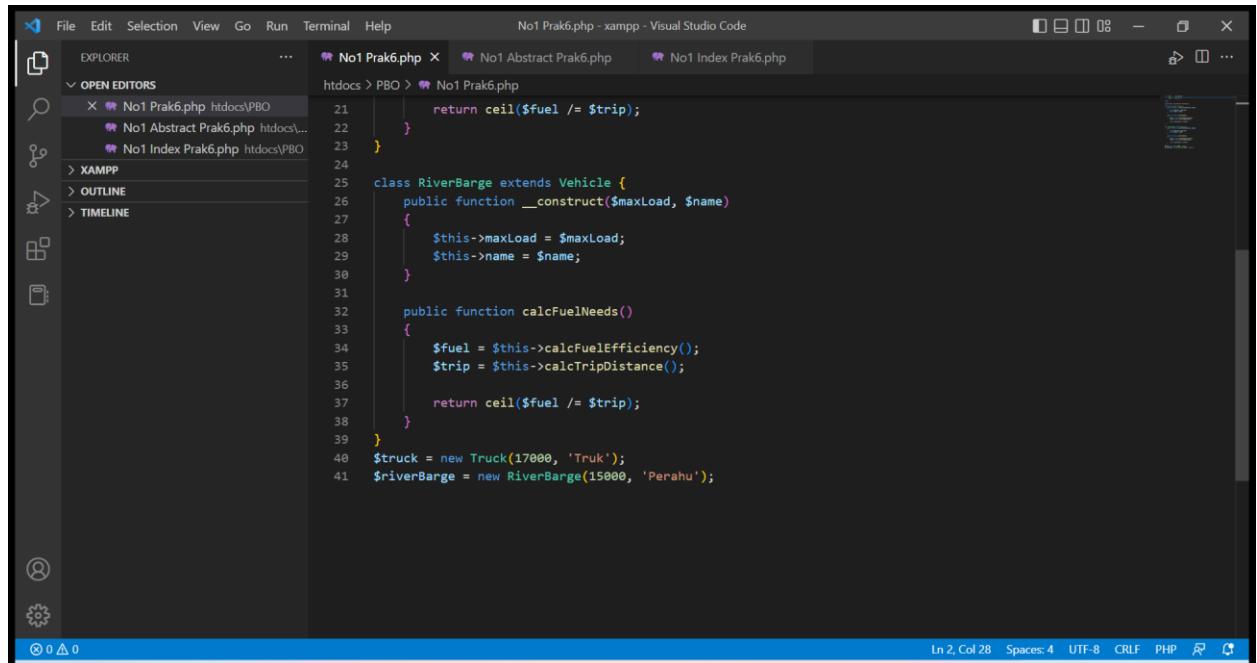
2022

1. Source Code

PHP

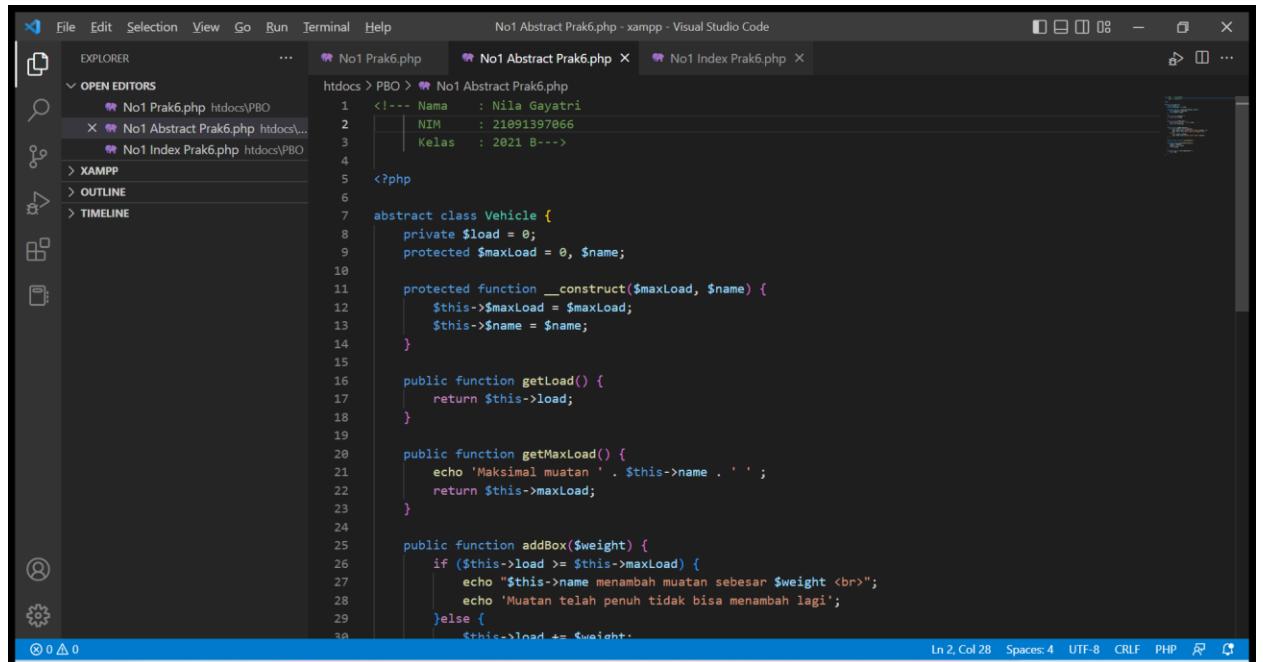


```
1 <!-- Nama : Nila Gayatri
2 | NIM : 2109139706
3 | Kelas : 2021 B-->
4
5 <?php
6
7 require_once 'No1 Abstract Prak6.php';
8
9 class Truck extends Vehicle {
10     public function __construct($maxLoad, $name)
11     {
12         $this->maxLoad = $maxLoad;
13         $this->name = $name;
14     }
15
16     public function calcFuelNeeds()
17     {
18         $fuel = $this->calcFuelEfficiency();
19         $trip = $this->calcTripDistance();
20
21         return ceil($fuel /= $trip);
22     }
23 }
24
25 class RiverBarge extends Vehicle {
26     public function __construct($maxLoad, $name)
27     {
28         $this->maxLoad = $maxLoad;
29         $this->name = $name;
30     }
31
32     public function calcFuelNeeds()
33     {
34         $fuel = $this->calcFuelEfficiency();
35         $trip = $this->calcTripDistance();
36
37         return ceil($fuel /= $trip);
38     }
39 }
40 $truck = new Truck(17000, 'Truk');
41 $riverBarge = new RiverBarge(15000, 'Perahu');
```

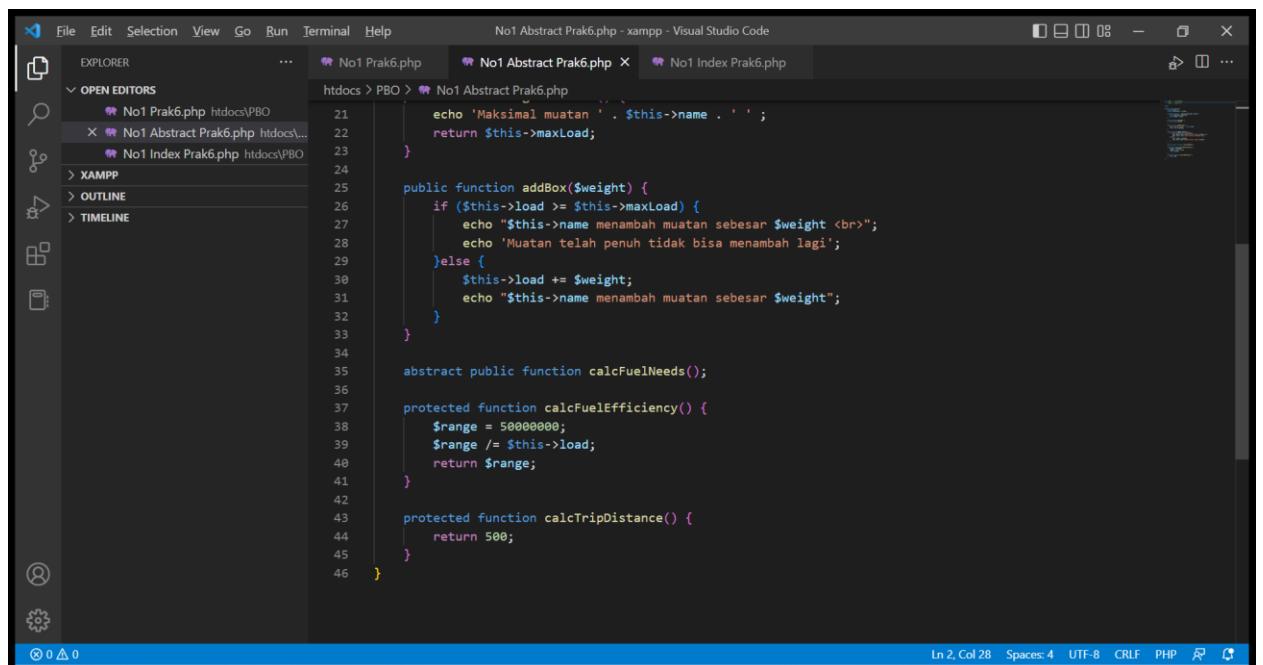


```
21         return ceil($fuel /= $trip);
22     }
23 }
24
25 class RiverBarge extends Vehicle {
26     public function __construct($maxLoad, $name)
27     {
28         $this->maxLoad = $maxLoad;
29         $this->name = $name;
30     }
31
32     public function calcFuelNeeds()
33     {
34         $fuel = $this->calcFuelEfficiency();
35         $trip = $this->calcTripDistance();
36
37         return ceil($fuel /= $trip);
38     }
39 }
40 $truck = new Truck(17000, 'Truk');
41 $riverBarge = new RiverBarge(15000, 'Perahu');
```

Abstrak



```
htdocs > PBO > No1 Abstract Prak6.php
1 <!-- Nama : Nila Gayatri
2 | NIM : 21091397066
3 | Kelas : 2021 B-->
4
5 <?php
6
7 abstract class Vehicle {
8     private $load = 0;
9     protected $maxLoad = 0, $name;
10
11    protected function __construct($maxLoad, $name) {
12        $this->$maxLoad = $maxLoad;
13        $this->$name = $name;
14    }
15
16    public function getLoad() {
17        return $this->load;
18    }
19
20    public function getMaxLoad() {
21        echo 'Maksimal muatan ' . $this->name . ' ';
22        return $this->maxLoad;
23    }
24
25    public function addBox($weight) {
26        if ($this->load >= $this->maxLoad) {
27            echo "$this->name menambah muatan sebesar $weight <br>";
28            echo 'Muatan telah penuh tidak bisa menambah lagi';
29        }else {
30            $this->load += $weight;
31            echo "$this->name menambah muatan sebesar $weight";
32        }
33    }
34
35    abstract public function calcFuelNeeds();
36
37    protected function calcFuelEfficiency() {
38        $range = 5000000;
39        $range /= $this->load;
40        return $range;
41    }
42
43    protected function calcTripDistance() {
44        return 500;
45    }
46 }
```



```
htdocs > PBO > No1 Abstract Prak6.php
21 echo 'Maksimal muatan ' . $this->name . ' ';
22 return $this->maxLoad;
23
24
25 public function addBox($weight) {
26     if ($this->load >= $this->maxLoad) {
27         echo "$this->name menambah muatan sebesar $weight <br>";
28         echo 'Muatan telah penuh tidak bisa menambah lagi';
29     }else {
30         $this->load += $weight;
31         echo "$this->name menambah muatan sebesar $weight";
32     }
33
34 abstract public function calcFuelNeeds();
35
36 protected function calcFuelEfficiency() {
37     $range = 5000000;
38     $range /= $this->load;
39     return $range;
40 }
41
42 protected function calcTripDistance() {
43     return 500;
44 }
45 }
```

Index

The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer (Left):** Shows the project structure with files: No1 Prak6.php, No1 Abstract Prak6.php, and No1 Index Prak6.php.
- Terminal (Top):** No1 Index Prak6.php - xampp - Visual Studio Code
- Code Editor (Main Area):** The file No1 Index Prak6.php is open, displaying PHP code for a web page. The code includes Bootstrap CSS imports, a title, and a container section with a row and a column for a strong text.
- Status Bar (Bottom):** Ln 45, Col 42 / Spaces: 4 / UTF-8 / CRLF / PHP

```
<!-- Nama : Nila Gayatri
-->
<!-- NIM : 21091397066
-->
<!-- Kelas : 2021 B-->

<?php
    require_once 'No1 Prak6.php';
?>

<!DOCTYPE html>
<html lang="id">
<head>
    <!-- Bootstrap CSS -->
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet"
        integrity="sha384-1BmE4kWBQjZElEJzq5sD8WvOfYmOOYdKsvt5J/CUcXI0lqOHqOJL3jWnN6Q==" crossorigin="anonymous">
    <title>PBO Praktikum 6</title>
</head>
<body>
    <div class="container">
        <br>
        <h2 class="text-center">PBO - Praktikum 6</h2>
        <div class="row">
            <div class="col-5 mx-auto border p-3 mt-2">
                <h4 class="text-center"><strong>Soal 1</strong></h4>
                <br>
                <b><?= $truck->getMaxLoad() . ' kg'; ?><br></b>
                <br>
                <?= $truck->addCargo('SOPA') . ' kg' . '>'<br>
            </div>
        </div>
    </div>
</body>
```

The screenshot shows the Visual Studio Code interface with the title bar "No1 Index Prak6.php - xampp - Visual Studio Code". The Explorer sidebar on the left lists "OPEN EDITORS" with three files: "No1 Prak6.php", "No1 Abstract Prak6.php", and "No1 Index Prak6.php" (which is currently active). The main editor area displays the following PHP code:

```
29     <br>
30     <?= $truck->addBox(6000) . ' kg'; ?> <br>
31     <?= $truck->addBox(5000) . ' kg'; ?> <br>
32     <?= $truck->addBox(7000) . ' kg'; ?> <br>
33
34     <?php
35         echo "Jadi, Butuh Bahan Bakar sebanyak " . $truck->calcFuelNeeds() . ' Liter'. '<br>
36     ?>
37
38     <br>
39     <br>
40
41     <b><?= $riverBarge->getMaxLoad() . ' kg'; ?> </b>
42     <br>
43     <?= $riverBarge->addBox(5000) . ' kg'; ?> <br>
44     <?= $riverBarge->addBox(6000) . ' kg'; ?> <br>
45     <?= $riverBarge->addBox(8000) . ' kg'; ?> <br>
46
47     <?php
48         echo "Jadi, Butuh Bahan Bakar sebanyak " . $riverBarge->calcFuelNeeds() . ' Liter'
49     ?>
50
51     </div>
52 </div>
53 </body>
54
55 </html>
```

Hasil output

PBO - Praktikum 6

Soal 1

Maksimal muatan Truk 17000 kg

Truk menambah muatan sebesar 6000 kg
Truk menambah muatan sebesar 5000 kg
Truk menambah muatan sebesar 7000 kg
Jadi, Butuh Bahan Bakar sebanyak 6 Liter

Maksimal muatan Perahu 15000 kg

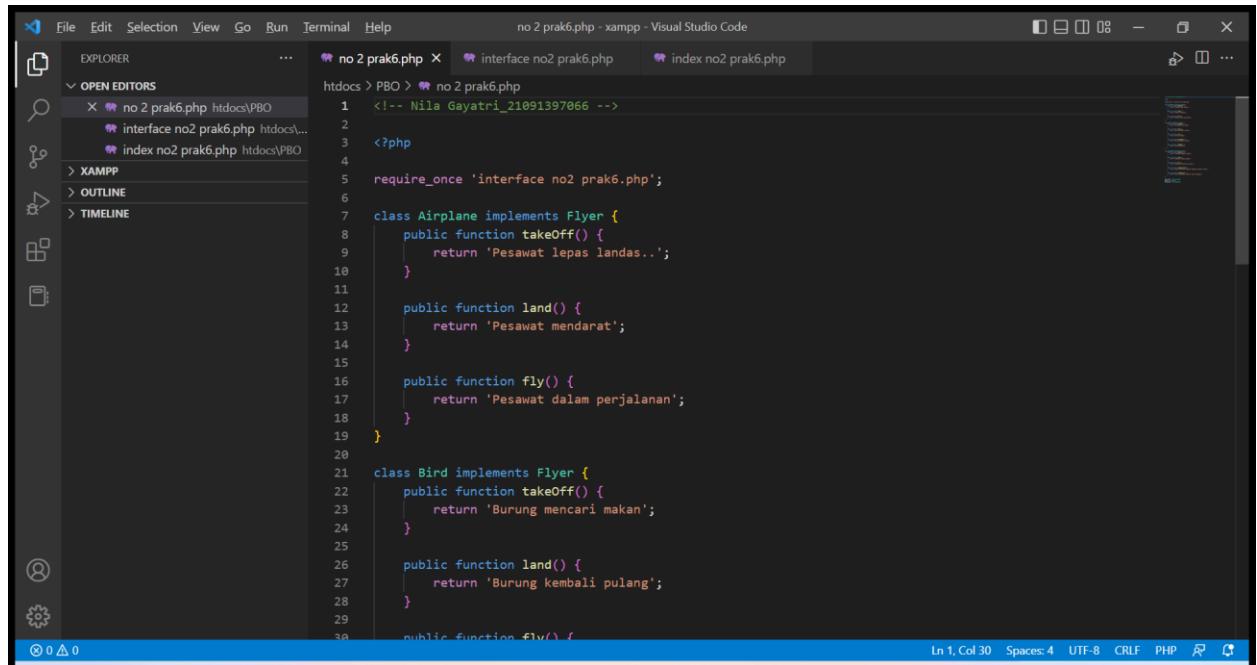
Perahu menambah muatan sebesar 5000 kg
Perahu menambah muatan sebesar 6000 kg
Perahu menambah muatan sebesar 8000 kg
Jadi, Butuh Bahan Bakar sebanyak 6 Liter

Analisa

Analisa yang terdapat pada abstract class vehicle, methode calfueneeds yang digunakan untuk menghitung bahan bakar yang di gunakan. Abstract yang diletakkan pada class vehicle merupakan sebagai parent class dan diakses oleh sebuah child classnya yaitu class truk dan class riverbarge yang akan mengambil nilai yang dihasilkan dari pembagian 2 method yaitu calfuelefficiency dan caltripdistance.

2. Source Code

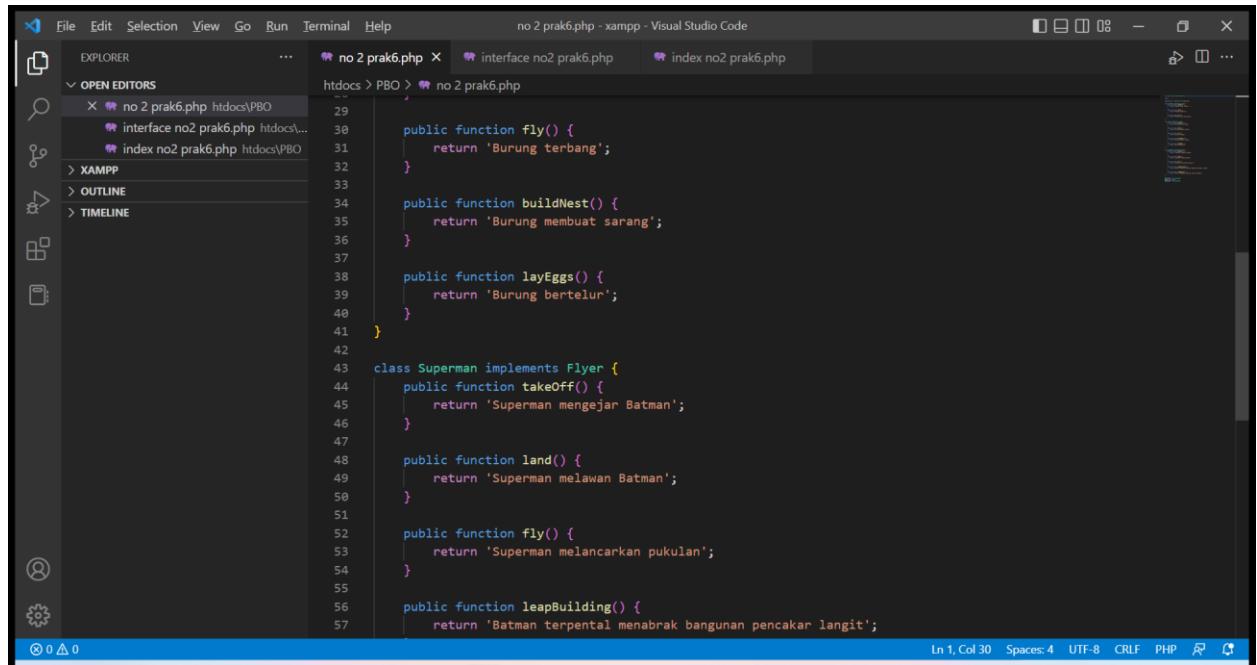
PHP



no 2 prak6.php - xampp - Visual Studio Code

```
1 <!-- Nila Gayatri_21091397066 -->
2
3 <?php
4
5 require_once 'interface no2 prak6.php';
6
7 class Airplane implements Flyer {
8     public function takeOff() {
9         return 'Pesawat lepas landas..';
10    }
11
12    public function land() {
13        return 'Pesawat mendarat';
14    }
15
16    public function fly() {
17        return 'Pesawat dalam perjalanan';
18    }
19 }
20
21 class Bird implements Flyer {
22     public function takeOff() {
23         return 'Burung mencari makan';
24     }
25
26     public function land() {
27         return 'Burung kembali pulang';
28     }
29
30     public function fly() {
31         return 'Burung terbang';
32     }
33
34     public function buildNest() {
35         return 'Burung membuat sarang';
36     }
37
38     public function layEggs() {
39         return 'Burung bertelur';
40     }
41 }
42
43 class Superman implements Flyer {
44     public function takeOff() {
45         return 'Superman mengejar Batman';
46     }
47
48     public function land() {
49         return 'Superman melawan Batman';
50     }
51
52     public function fly() {
53         return 'Superman melancarkan pukulan';
54     }
55
56     public function leapBuilding() {
57         return 'Batman terpental menabrak bangunan pencakar langit';
58     }
59 }
```

In 1, Col 30 Spaces: 4 UTF-8 CRLF PHP



no 2 prak6.php - xampp - Visual Studio Code

```
29
30     public function fly() {
31         return 'Burung terbang';
32     }
33
34     public function buildNest() {
35         return 'Burung membuat sarang';
36     }
37
38     public function layEggs() {
39         return 'Burung bertelur';
40     }
41 }
42
43 class Superman implements Flyer {
44     public function takeOff() {
45         return 'Superman mengejar Batman';
46     }
47
48     public function land() {
49         return 'Superman melawan Batman';
50     }
51
52     public function fly() {
53         return 'Superman melancarkan pukulan';
54     }
55
56     public function leapBuilding() {
57         return 'Batman terpental menabrak bangunan pencakar langit';
58     }
59 }
```

In 1, Col 30 Spaces: 4 UTF-8 CRLF PHP

File Edit Selection View Go Run Terminal Help no 2 prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS

XAMPP OUTLINE TIMELINE

```
htdocs > PBO > no 2 prak6.php
41 }
42
43 class Superman implements Flyer {
44     public function takeOff() {
45         return 'Superman mengejar Batman';
46     }
47
48     public function land() {
49         return 'Superman melawan Batman';
50     }
51
52     public function fly() {
53         return 'Superman melancarkan pukulan';
54     }
55
56     public function leapBuilding() {
57         return 'Batman terpental menabrak bangunan pencakar langit';
58     }
59
60     public function stopBullet() {
61         return 'Polisi menembaki superman namun ditangkis';
62     }
63 }
64
65 $airplane = new Airplane;
66 $bird = new Bird;
67 $superman = new Superman;
```

Ln 1, Col 30 Spaces: 4 UTF-8 CRLF PHP ⚡

Interface

File Edit Selection View Go Run Terminal Help interface no2 prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS

XAMPP OUTLINE TIMELINE

```
htdocs > PBO > interface no2 prak6.php
1 <!-- Nila Gayatri_2109139706 -->
2
3 <?php
4
5 interface Flyer {
6     public function takeOff();
7     public function land();
8     public function fly();
9 }
10
11 interface Sailer {
12     public function dock();
13     public function cruise();
14 }
```

Ln 1, Col 29 Spaces: 4 UTF-8 CRLF PHP ⚡

Index

This screenshot shows a Visual Studio Code interface with three open files in the Explorer sidebar: 'no 2 prak6.php', 'interface no2 prak6.php', and 'index no2 prak6.php'. The 'index no2 prak6.php' file is the active editor, displaying the following PHP code:

```
1 <!-- Nila Gayatri _21091397066-->
2
3 <?php
4     require_once 'no_2_prak6.php';
5 ?>
6
7 <!DOCTYPE html>
8 <html lang="en">
9
10 <head>
11     <!-- Bootstrap CSS -->
12     <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet"
13          integrity="sha384-1BmE4kWBq781YhFlvKuhfTAU6auU8tT94WhftjDbrCEXSU1oBoqyl2QvZ6jIW3" crossorigin="anony
14
15     <title>Praktikum 6</title>
16 </head>
17
18 <body>
19     <div class="container">
20         <br>
21         <div class="row">
22             <div class="col-5 mx-auto border p-3 mt-2">
23                 <h4 class="text-center"><strong><u>Soal 2</u></strong></h4>
24                 <br><br>
25                 <b><?php
26                     echo "Superman";
27                 ?></b> <br>
28                 <?= $superman->land(); ?> <br>
29                 <?= $superman->takeOff(); ?> <br>
30                 <?= $superman->fly(); ?> <br>
31                 <?= $superman->leapBuilding(); ?> <br>
32                 <?= $superman->stopBullet(); ?> <br>
33                 <br>
34                 <b><?php
35                     echo "Bird";
36                 ?></b> <br>
37                 <?= $bird->buildNest(); ?> <br>
38                 <?= $bird->takeOff(); ?> <br>
39                 <?= $bird->fly(); ?> <br>
40                 <?= $bird->land(); ?> <br>
41                 <?= $bird->layEggs(); ?> <br>
42                 <br>
43                 <b><?php
44                     echo "Airplane";
45                 ?></b> <br>
46                 <?= $airplane->takeOff(); ?> <br>
47                 <?= $airplane->fly(); ?> <br>
48                 <?= $airplane->land(); ?> <br>
49             </div>
50         </div>
51     </body>
52 </html>
```

The status bar at the bottom indicates 'Ln 1, Col 30' and 'Spaces: 4'.

This screenshot shows a Visual Studio Code interface with three open files in the Explorer sidebar: 'no 2 prak6.php', 'interface no2 prak6.php', and 'index no2 prak6.php'. The 'index no2 prak6.php' file is the active editor, displaying the following PHP code:

```
1 <!-- Nila Gayatri _21091397066-->
2
3 <?php
4     require_once 'no_2_prak6.php';
5 ?>
6
7 <!DOCTYPE html>
8 <html lang="en">
9
10 <head>
11     <!-- Bootstrap CSS -->
12     <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet"
13          integrity="sha384-1BmE4kWBq781YhFlvKuhfTAU6auU8tT94WhftjDbrCEXSU1oBoqyl2QvZ6jIW3" crossorigin="anony
14
15     <title>Praktikum 6</title>
16 </head>
17
18 <body>
19     <div class="container">
20         <br>
21         <div class="row">
22             <div class="col-5 mx-auto border p-3 mt-2">
23                 <h4 class="text-center"><strong><u>Soal 2</u></strong></h4>
24                 <br><br>
25                 <b><?php
26                     echo "Superman";
27                 ?></b> <br>
28                 <?= $superman->land(); ?> <br>
29                 <?= $superman->takeOff(); ?> <br>
30                 <?= $superman->fly(); ?> <br>
31                 <?= $superman->leapBuilding(); ?> <br>
32                 <?= $superman->stopBullet(); ?> <br>
33                 <br>
34                 <b><?php
35                     echo "Bird";
36                 ?></b> <br>
37                 <?= $bird->buildNest(); ?> <br>
38                 <?= $bird->takeOff(); ?> <br>
39                 <?= $bird->fly(); ?> <br>
40                 <?= $bird->land(); ?> <br>
41                 <?= $bird->layEggs(); ?> <br>
42                 <br>
43                 <b><?php
44                     echo "Airplane";
45                 ?></b> <br>
46                 <?= $airplane->takeOff(); ?> <br>
47                 <?= $airplane->fly(); ?> <br>
48                 <?= $airplane->land(); ?> <br>
49             </div>
50         </div>
51     </body>
52 </html>
```

The status bar at the bottom indicates 'Ln 1, Col 30' and 'Spaces: 4'.

Hasil Output

Soal 2

Superman

Superman melawan Batman
Superman mengejar Batman
Superman melancarkan pukulan
Batman terpental menabrak bangunan pencakar langit
Polisi menembaki superman namun ditangkis

Bird

Burung membuat sarang
Burung mencari makan
Burung terbang
Burung kembali pulang
Burung bertelur

Airplane

Pesawat lepas landas..
Pesawat dalam perjalanan
Pesawat mendarat

Analisa:

Implementasi yang terdapat pada nomer 2 tersebut ialah implementasi polymorphism dengan sistem penggunaan interface flyer sehingga semua class yang diimplementasi dari interface flyer harus memiliki method takeoff, land dan fly.

3. Source code

Intrafrace php

A screenshot of Visual Studio Code showing three open editor tabs. The active tab contains PHP code defining two interfaces: Flyer and Sailer. The Flyer interface has methods takeOFF(), land(), and fly(). The Sailer interface has methods dock() and cruise(). The code is as follows:

```
<?php
interface Flyer {
    public function takeOFF();
    public function land();
    public function fly();
}
interface Sailer {
    public function dock();
    public function cruise();
}
```

PHP

A screenshot of Visual Studio Code showing three open editor tabs. The active tab contains PHP code defining a class Animal with a protected attribute \$name and a constructor __construct(\$name). It also defines a method eat() which returns a string indicating the animal is eating. A class Homosapiens extends Animal. Another class Airplane2 extends Vehicle and implements the Flyer interface, with a constructor __construct(\$maxLoad, \$name) and a method maxLoad.

```
<?php
require_once 'abstrac no 3 prak6.php';
require_once 'interface no 3 prak6.php';

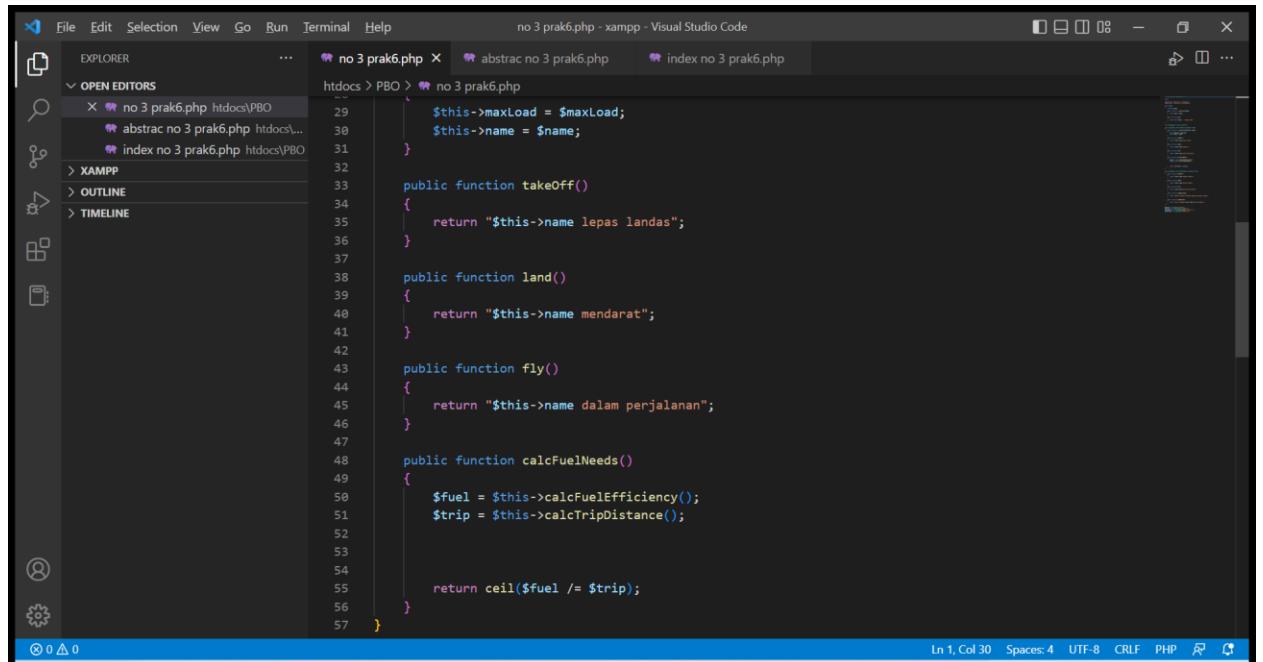
class Animal
{
    protected $name;

    public function __construct($name)
    {
        $this->name = $name;
    }

    public function eat()
    {
        return $this->name . ' sedang makan';
    }
}

class Homosapiens extends Animal {}

class Airplane2 extends Vehicle implements Flyer
{
    public function __construct($maxLoad, $name)
    {
        $this->maxLoad = $maxLoad;
        $this->name = $name;
    }
}
```

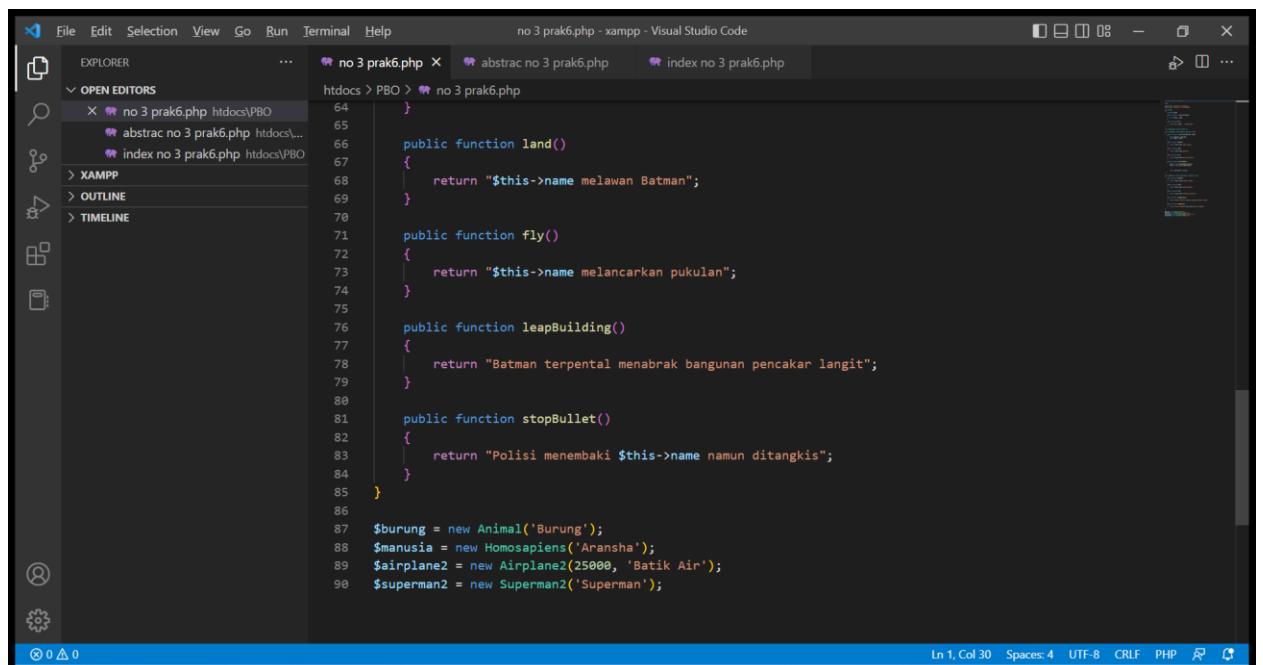


File Edit Selection View Go Run Terminal Help no 3 prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS XAMPP OUTLINE TIMELINE

```
htdocs > PBO > no 3 prak6.php
29     $this->maxLoad = $maxLoad;
30     $this->name = $name;
31 }
32
33 public function takeOff()
34 {
35     return "$this->name lepas landas";
36 }
37
38 public function land()
39 {
40     return "$this->name mendarat";
41 }
42
43 public function fly()
44 {
45     return "$this->name dalam perjalanan";
46 }
47
48 public function calcFuelNeeds()
49 {
50     $fuel = $this->calcFuelEfficiency();
51     $trip = $this->calcTripDistance();
52
53
54     return ceil($fuel / $trip);
55 }
56 }
57 }
```

Ln 1, Col 30 Spaces: 4 UTF-8 CRLF PHP



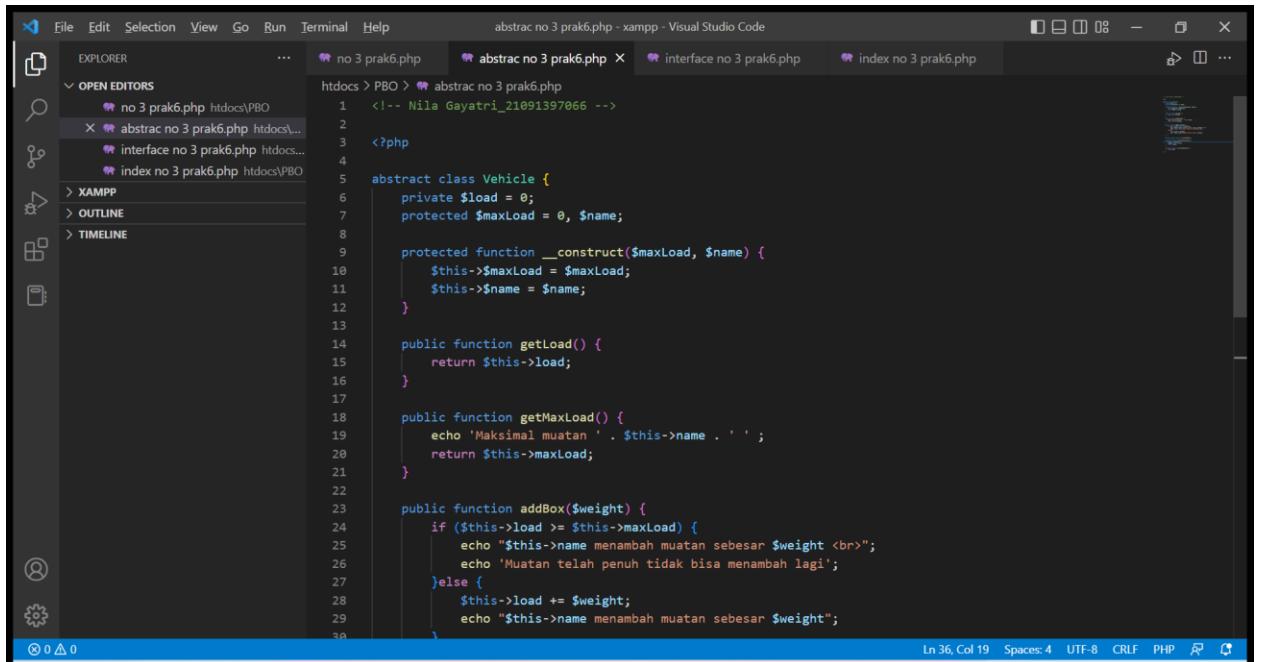
File Edit Selection View Go Run Terminal Help no 3 prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS XAMPP OUTLINE TIMELINE

```
htdocs > PBO > no 3 prak6.php
64 }
65
66 public function land()
67 {
68     return "$this->name melawan Batman";
69 }
70
71 public function fly()
72 {
73     return "$this->name melancarkan pukulan";
74 }
75
76 public function leapBuilding()
77 {
78     return "Batman terpental menabrak bangunan pencakar langit";
79 }
80
81 public function stopBullet()
82 {
83     return "Polisi menembaki $this->name namun ditangkis";
84 }
85 }
86
87 $burung = new Animal('Burung');
88 $manusia = new Homosapiens('Aransha');
89 $airplane2 = new Airplane2(25000, 'Batik Air');
90 $superman2 = new Superman2('Superman');
```

Ln 1, Col 30 Spaces: 4 UTF-8 CRLF PHP

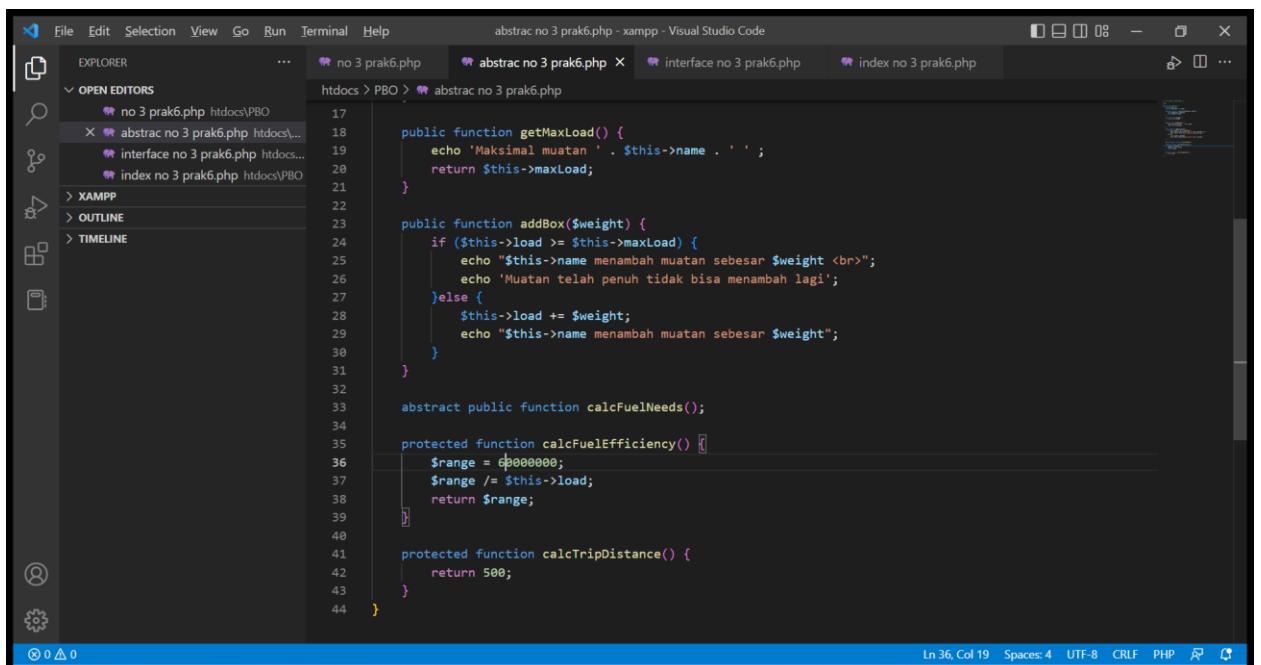
Abstrak php



The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** abstrac no 3 prak6.php - xampp - Visual Studio Code
- Explorer:** Shows files in the current workspace, including "no 3 prak6.php", "abstrac no 3 prak6.php", "interface no 3 prak6.php", and "index no 3 prak6.php".
- Editor:** Displays the code for the "abstrac no 3 prak6.php" file. The code defines an abstract class `Vehicle` with methods for load, max load, and adding weight.
- Status Bar:** Ls 36, Col 19, Spaces: 4, UTF-8, CRLF, PHP, etc.

```
1 <!-- Nila Gayatri_21091397066 -->
2
3 <?php
4
5 abstract class Vehicle {
6     private $load = 0;
7     protected $maxLoad = 0, $name;
8
9     protected function __construct($maxLoad, $name) {
10         $this->$maxLoad = $maxLoad;
11         $this->$name = $name;
12     }
13
14     public function getLoad() {
15         return $this->load;
16     }
17
18     public function getMaxLoad() {
19         echo 'Maksimal muatan ' . $this->name . ' ';
20         return $this->maxLoad;
21     }
22
23     public function addBox($weight) {
24         if ($this->load >= $this->maxLoad) {
25             echo "$this->name menambah muatan sebesar $weight <br>";
26             echo 'Muatan telah penuh tidak bisa menambah lagi';
27         }else {
28             $this->load += $weight;
29             echo "$this->name menambah muatan sebesar $weight";
30         }
31     }
32
33     abstract public function calcFuelNeeds();
34
35     protected function calcFuelEfficiency() {
36         $range = 0000000;
37         $range /= $this->load;
38         return $range;
39     }
40
41     protected function calcTripDistance() {
42         return 500;
43     }
44 }
```

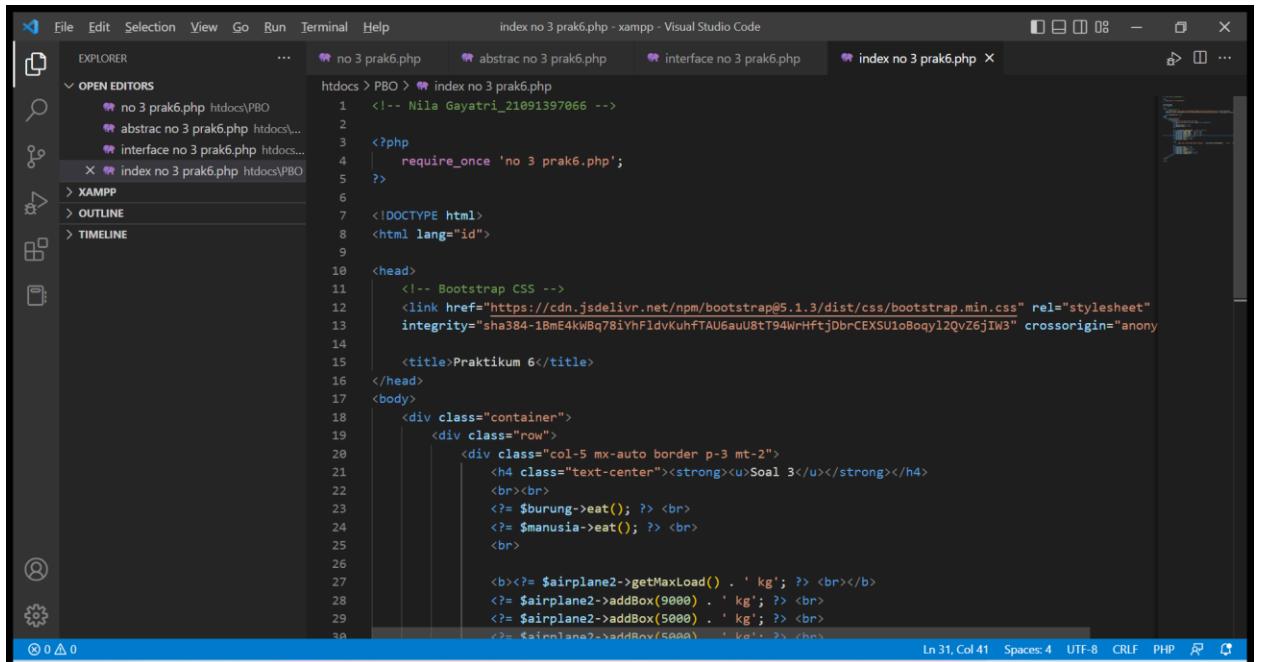


The screenshot shows the Visual Studio Code interface with the following details:

- File Bar:** File, Edit, Selection, View, Go, Run, Terminal, Help.
- Title Bar:** abstrac no 3 prak6.php - xampp - Visual Studio Code
- Explorer:** Shows files in the current workspace, including "no 3 prak6.php", "abstrac no 3 prak6.php", "interface no 3 prak6.php", and "index no 3 prak6.php".
- Editor:** Displays the completed code for the "abstrac no 3 prak6.php" file. The class now includes methods for calculating fuel needs, fuel efficiency, and trip distance.
- Status Bar:** Ls 36, Col 19, Spaces: 4, UTF-8, CRLF, PHP, etc.

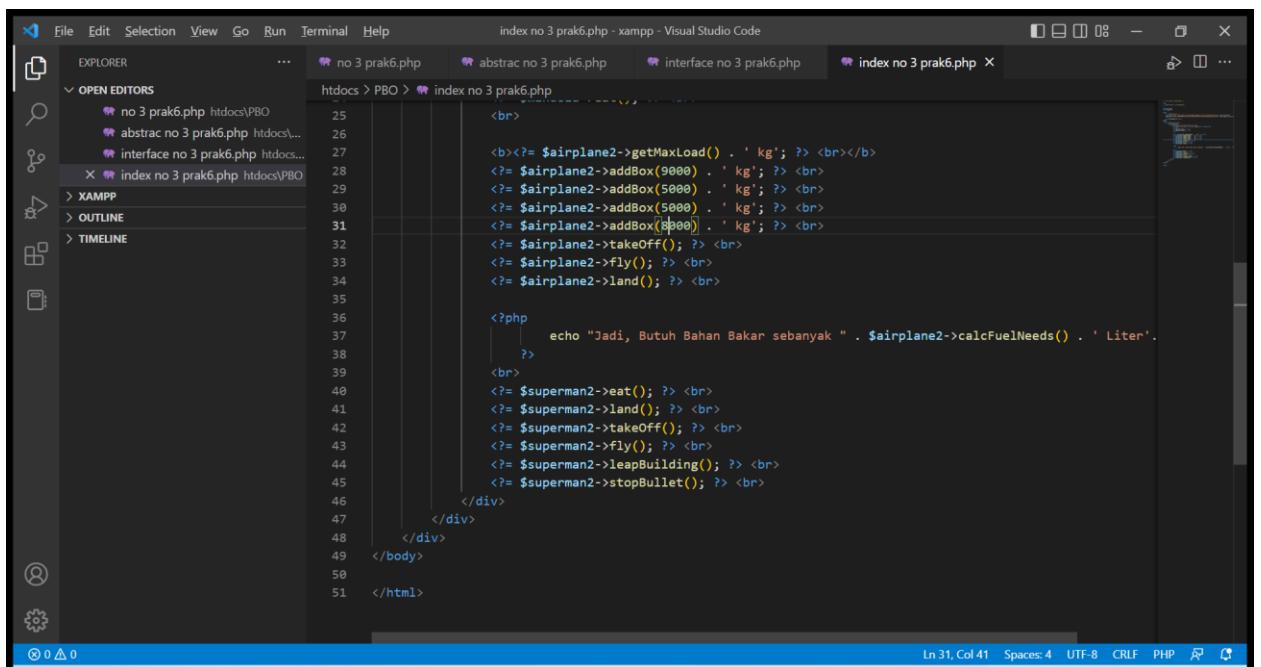
```
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
```

Index php



```
index no 3 prak6.php - xampp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
index no 3 prak6.php abstract no 3 prak6.php interface no 3 prak6.php index no 3 prak6.php X
htdocs > PBO > index no 3 prak6.php
1 <!-- Nila Gayatri_21091397066 -->
2
3 <?php
4 | require_once 'no_3_prak6.php';
5 ?>
6
7 <!DOCTYPE html>
8 <html lang="id">
9
10 <head>
11 | <!-- Bootstrap CSS -->
12 | <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet"
13 | integrity="sha384-E4kWBq78iYhIldvTAU6au8tT94WrHftjDbrCEXSU1oBoq12QvZ6jIW3" crossorigin="anony
14 |
15 | <title>Praktikum 6</title>
16 | </head>
17 | <body>
18 | <div class="container">
19 | <div class="row">
20 | <div class="col-5 mx-auto border p-3 mt-2">
21 | <h4 class="text-center"><strong><u>Soal 3</u></strong></h4>
22 | <br><br>
23 | <?= $burung->eat(); ?> <br>
24 | <?= $manusia->eat(); ?> <br>
25 | <br>
26 |
27 | <b><?= $airplane2->getMaxLoad() . ' kg'; ?> <br></b>
28 | <?= $airplane2->addBox(9000) . ' kg'; ?> <br>
29 | <?= $airplane2->addBox(5000) . ' kg'; ?> <br>
30 | <?= $airplane2->addBox(5000) . ' kg'; ?> <br>
31 | <?= $airplane2->addBox(5000) . ' kg'; ?> <br>
32 | <?= $airplane2->takeOff(); ?> <br>
33 | <?= $airplane2->fly(); ?> <br>
34 | <?= $airplane2->land(); ?> <br>
35 |
36 | <?php
37 | | echo "Jadi, Butuh Bahan Bakar sebanyak " . $airplane2->calcFuelNeeds() . ' Liter'.
38 | | ?>
39 | <br>
40 | <?= $superman2->eat(); ?> <br>
41 | <?= $superman2->land(); ?> <br>
42 | <?= $superman2->takeOff(); ?> <br>
43 | <?= $superman2->fly(); ?> <br>
44 | <?= $superman2->leapBuilding(); ?> <br>
45 | <?= $superman2->stopBullet(); ?> <br>
46 | </div>
47 | </div>
48 | </div>
49 | </body>
50 | </html>
```

Ln 31, Col 41 Spaces: 4 UTF-8 CRLF PHP



```
index no 3 prak6.php - xampp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
index no 3 prak6.php abstract no 3 prak6.php interface no 3 prak6.php index no 3 prak6.php X
htdocs > PBO > index no 3 prak6.php
25
26
27 | <br>
28 | <b><?= $airplane2->getMaxLoad() . ' kg'; ?> <br></b>
29 | <?= $airplane2->addBox(9000) . ' kg'; ?> <br>
30 | <?= $airplane2->addBox(5000) . ' kg'; ?> <br>
31 | <?= $airplane2->addBox(5000) . ' kg'; ?> <br>
32 | <?= $airplane2->takeOff(); ?> <br>
33 | <?= $airplane2->fly(); ?> <br>
34 | <?= $airplane2->land(); ?> <br>
35 |
36 | <?php
37 | | echo "Jadi, Butuh Bahan Bakar sebanyak " . $airplane2->calcFuelNeeds() . ' Liter'.
38 | | ?>
39 | <br>
40 | <?= $superman2->eat(); ?> <br>
41 | <?= $superman2->land(); ?> <br>
42 | <?= $superman2->takeOff(); ?> <br>
43 | <?= $superman2->fly(); ?> <br>
44 | <?= $superman2->leapBuilding(); ?> <br>
45 | <?= $superman2->stopBullet(); ?> <br>
46 | </div>
47 | </div>
48 | </div>
49 | </body>
50 | </html>
```

Ln 31, Col 41 Spaces: 4 UTF-8 CRLF PHP

Hasil Output

Soal 5

Burung sedang makan
Aransha sedang makan

Maksimal muatan Batik Air 25000 kg

Batik Air menambah muatan sebesar 9000 kg
Batik Air menambah muatan sebesar 5000 kg
Batik Air menambah muatan sebesar 5000 kg
Batik Air menambah muatan sebesar 8000 kg
Batik Air lepas landas
Batik Air dalam perjalanan
Batik Air mendarat
Jadi, Butuh Bahan Bakar sebanyak 5 Liter

Superman sedang makan
Superman melawan Batman
Superman mengejar Batman
Superman melancarkan pukulan
Batman terpental menabrak bangunan pencakar langit
Polisi menembaki Superman namun ditangkis

Analisa:

Analisa yang terdapat pada interface flyer dan abstract class vehicle. Merupakan class airplane yang mengimplementasikan dari interface flyer dan turunan dari vehicle sehingga class airplane harus juga memiliki method calcfuelneeds, takeoff, land dan fly. Class implementasi dimana yang terdapat flyer dan turunan dari animal sehingga memiliki method takeoff, land, fly, dan eat. Dan class superman turunan dari homosapiens yang juga memiliki dari animal, serta dimana implementasi dari interface flyer. Maka class superman memiliki metho eat, takeoff, land, fly.

4. Interface php

File Edit Selection View Go Run Terminal Help No4 interface prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS XAMPP OUTLINE TIMELINE

No4 prak6.php htdocs\PBO No4 interface prak6.php htdocs\PBO No4 index prak6.php htdocs\PBO No4 Abstract Prak6.php htdocs\PBO

```
1 <!-- Nama : Nila Gayatri
2 | NIM : 21091397066
3 | Kelas : 2021 b-->
4
5 <?php
6
7 interface Flyer {
8     public function takeOff();
9     public function land();
10    public function fly();
11 }
12
13 interface Sailer {
14     public function dock();
15     public function cruise();
16 }
```

Ln 2, Col 28 Spaces: 4 UTF-8 CRLF PHP

PHP

File Edit Selection View Go Run Terminal Help No4 prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS XAMPP OUTLINE TIMELINE

No4 prak6.php htdocs\PBO No4 interface prak6.php htdocs\PBO No4 index prak6.php htdocs\PBO No4 Abstract Prak6.php htdocs\PBO

```
1 class Vehicle {
2     public function takeOff() {
3         return 'Pesawat lepas landas';
4     }
5     public function land() {
6         return 'Pesawat mendarat';
7     }
8     public function fly() {
9         return 'Pesawat dalam perjalanan';
10 }
11
12 class SeaPlane extends Vehicle implements Sailer {
13     public function __construct($maxLoad, $name) {
14         $this->maxLoad = $maxLoad;
15         $this->name = $name;
16     }
17
18     public function calcFuelNeeds() {
19         $fuel = $this->calcFuelEfficiency();
20         $trip = $this->calcTripDistance();
21
22         return ceil($fuel /=$ trip);
23     }
24
25     public function dock() {
26         return $this->name . ' berada di dermaga';
27     }
28
29     public function cruise() {
30
31 }
```

Ln 105, Col 31 Spaces: 4 UTF-8 CRLF PHP

The image shows two instances of the Visual Studio Code editor side-by-side, both displaying PHP code related to a Vehicle class hierarchy.

Top Editor:

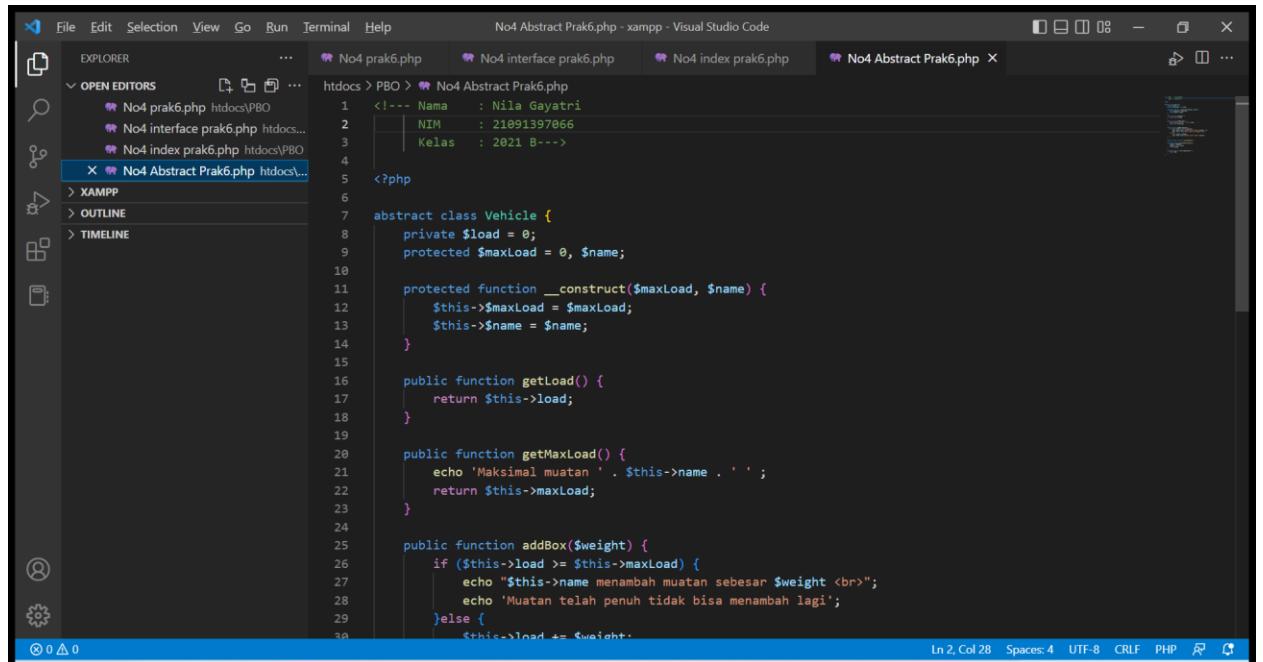
```
56     public function dock() {
57         return $this->name . ' berada di dermaga';
58     }
59
60     public function cruise() {
61         return $this->name . ' sedang berlayar';
62     }
63
64     public function takeOff() {
65         return $this->name . ' lepas landas';
66     }
67
68     public function land() {
69         return $this->name . ' mendarat';
70     }
71
72     public function fly() {
73         return $this->name . ' dalam perjalanan';
74     }
75 }
76
77 class Helicopter extends Vehicle {
78     public function __construct($maxLoad, $name) {
79         $this->maxLoad = $maxLoad;
80         $this->name = $name;
81     }
82
83     public function calcFuelNeeds() {
84         $fuel = $this->calcFuelEfficiency();
85     }

```

Bottom Editor:

```
92 }
93
94     public function land() {
95         return $this->name . ' mendarat';
96     }
97
98     public function fly() {
99         return $this->name . ' dalam perjalanan';
100    }
101
102    $riverBarge2 = new RiverBarge2(50000, 'Atomic');
103    $seaPlane = new SeaPlane(30000, 'Titanic');
104    $helicopter = new Helicopter(20000, 'Brocklyn');
```

Abstrak



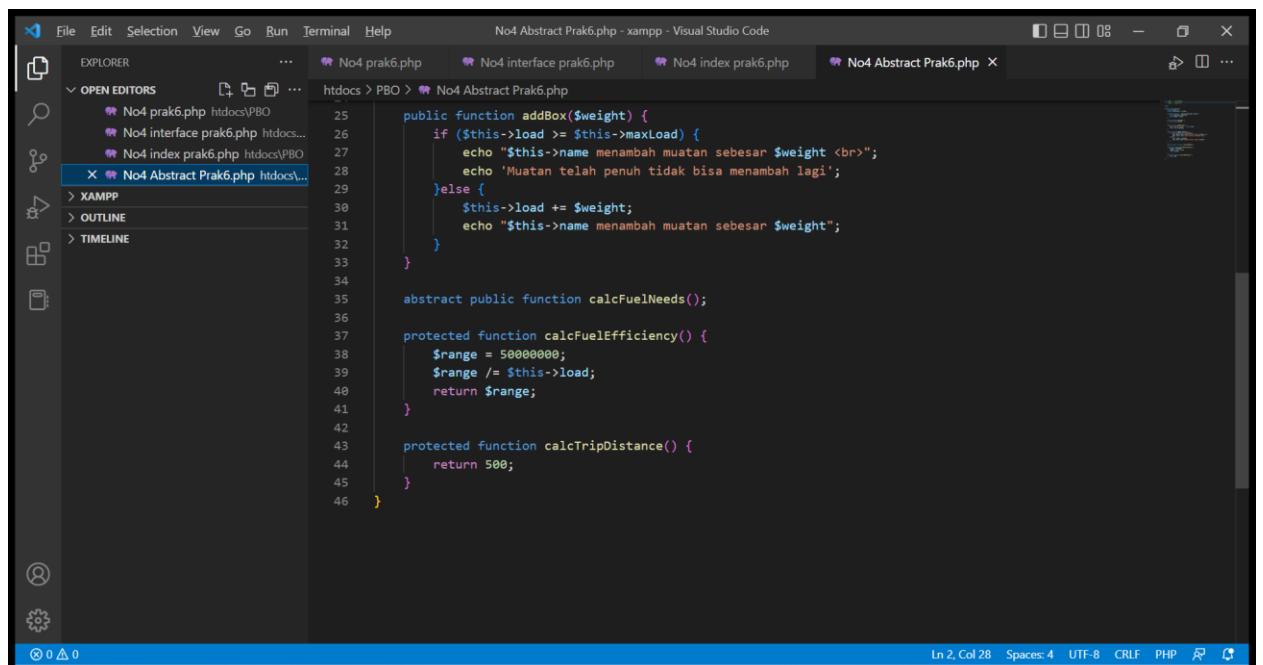
File Edit Selection View Go Run Terminal Help No4 Abstract Prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS XAMPP OUTLINE TIMELINE

No4 prak6.php No4 interface prak6.php No4 index prak6.php No4 Abstract Prak6.php

```
htdocs > PBO > No4 Abstract Prak6.php
1 <!-- Nama : Nila Gayatri
2 | NIM : 21091397066
3 | Kelas : 2021 B-->
4
5 <?php
6
7 abstract class Vehicle {
8     private $load = 0;
9     protected $maxLoad = 0, $name;
10
11     protected function __construct($maxLoad, $name) {
12         $this->$maxLoad = $maxLoad;
13         $this->$name = $name;
14     }
15
16     public function getLoad() {
17         return $this->load;
18     }
19
20     public function getMaxLoad() {
21         echo 'Maksimal muatan ' . $this->name . ' ';
22         return $this->maxLoad;
23     }
24
25     public function addBox($weight) {
26         if ($this->load >= $this->maxLoad) {
27             echo "$this->name menambah muatan sebesar $weight <br>";
28             echo 'Muatan telah penuh tidak bisa menambah lagi';
29         }else {
30             $this->load += $weight;
31             echo "$this->name menambah muatan sebesar $weight";
32         }
33     }
34
35     abstract public function calcFuelNeeds();
36
37     protected function calcFuelEfficiency() {
38         $range = 50000000;
39         $range /= $this->load;
40         return $range;
41     }
42
43     protected function calcTripDistance() {
44         return 500;
45     }
46 }
```

Ln 2, Col 28 Spaces: 4 UTF-8 CRLF PHP



File Edit Selection View Go Run Terminal Help No4 Abstract Prak6.php - xampp - Visual Studio Code

EXPLORER OPEN EDITORS XAMPP OUTLINE TIMELINE

No4 prak6.php No4 interface prak6.php No4 index prak6.php No4 Abstract Prak6.php

```
htdocs > PBO > No4 Abstract Prak6.php
25     public function addBox($weight) {
26         if ($this->load >= $this->maxLoad) {
27             echo "$this->name menambah muatan sebesar $weight <br>";
28             echo 'Muatan telah penuh tidak bisa menambah lagi';
29         }else {
30             $this->load += $weight;
31             echo "$this->name menambah muatan sebesar $weight";
32         }
33     }
34
35     abstract public function calcFuelNeeds();
36
37     protected function calcFuelEfficiency() {
38         $range = 50000000;
39         $range /= $this->load;
40         return $range;
41     }
42
43     protected function calcTripDistance() {
44         return 500;
45     }
46 }
```

Ln 2, Col 28 Spaces: 4 UTF-8 CRLF PHP

Index

Visual Studio Code interface showing two PHP files:

```

No4 index prak6.php - xampp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
htdocs > PBO > No4 index prak6.php
1 <!-- Nama : Nila Gayatri
2 NIM : 21091397066
3 Kelas : 2021 B-->
4
5 <?php
6 require_once 'No4 prak6.php';
7 ?>
8
9 <!DOCTYPE html>
10 <html lang="en">
11 <head>
12     <!-- Bootstrap CSS -->
13     <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet"
14         integrity="sha384-E4kWBq78iYhFlvKuhfTAU6auU8tT94WrHftjDbrCEXSU1oBoqyl2QVZ6jIW3" crossorigin="anonymous">
15
16     <title>PBO - Praktikum 6</title>
17 </head>
18 <body>
19     <h2 class="text-center">PBO - Praktikum 6</h2>
20     <div class="container">
21         <div class="row">
22             <div class="text-center"><strong>Soal 4</strong></div>
23             <br><br>
24             <div class="col-4 mx-auto border p-2 mt-2">
25                 <b><?= $riverBarge2->getMaxLoad() . ' kg'; ?> <br><b>
26                 <?= $riverBarge2->addBox(16000) . ' kg'; ?> <br>
27                 <?= $riverBarge2->addBox(13000) . ' kg'; ?> <br>
28                 <?= $riverBarge2->addBox(2000) . ' kg'; ?> <br>
29                 <?= $riverBarge2->addBox(9000) . ' kg'; ?> <br>
30             </div>
31         </div>
32     </div>
33
34 <No4 index prak6.php - xampp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
htdocs > PBO > No4 index prak6.php
1 <!-- $seaPlane->addBox(5000) . ' kg' , <br>
2 <?= $seaPlane->dock(); ?> <br>
3 <?= $seaPlane->cruise(); ?> <br>
4 <?= $seaPlane->takeOff(); ?> <br>
5 <?= $seaPlane->fly(); ?> <br>
6 <?= $seaPlane->land(); ?> <br>
7 <?php
8         echo "Jadi, Butuh Bahan Bakar sebanyak " . $seaPlane->calcFuelNeeds() . ' Liter'.
9     ?>
10    </div>
11    <div class="col mx-auto border p-2 mt-2">
12        <b><?= $helicopter->getMaxLoad() . ' kg'; ?> <br><b>
13        <?= $helicopter->addBox(8000) . ' kg'; ?> <br>
14        <?= $helicopter->addBox(2000) . ' kg'; ?> <br>
15        <?= $helicopter->takeOff(); ?> <br>
16        <?= $helicopter->fly(); ?> <br>
17        <?= $helicopter->land(); ?> <br>
18        <?php
19            echo "Jadi, Butuh Bahan Bakar sebanyak " . $helicopter->calcFuelNeeds() . ' Liter'
20        ?>
21    </div>
22 </div>
23 </body>
24 </html>

```

Hasil output

PBO - Praktikum 6

Soal 4

Maksimal muatan Atomic 50000 kg Atomic menambah muatan sebesar 16000 kg Atomic menambah muatan sebesar 13000 kg Atomic menambah muatan sebesar 2000 kg Atomic menambah muatan sebesar 9000 kg Atomic berada di dermaga Atomic sedang berlayar Jadi, Butuh Bahan Bakar sebanyak 3 Liter	Maksimal muatan Titanic 30000 kg Titanic menambah muatan sebesar 13000 kg Titanic menambah muatan sebesar 9000 kg Titanic berada di dermaga Titanic sedang berlayar Titanic lepas landas Titanic dalam perjalanan Titanic mendarat Jadi, Butuh Bahan Bakar sebanyak 5 Liter	Maksimal muatan Brooklyn 20000 kg Brooklyn menambah muatan sebesar 8000 kg Brooklyn menambah muatan sebesar 2000 kg Brooklyn lepas landas Brooklyn dalam perjalanan Brooklyn mendarat Jadi, Butuh Bahan Bakar sebanyak 10 Liter
--	--	--

Analisa

Analisa implementasi yang terdapat pada polymorphism dengan menggunakan interface dan abstract class ditinjukkan pada class seaplane yang implementasinya interface sailer. Turunan dari class airplane yang implementasinya flyer dan child dari sebuah vehicle sehingga class seaplane memiliki method dock, cruise, take off, land, fly, dan calcfuelneed.