

LAPORAN PRAKTIKUM 5

MATA KULIAH PEMROGRAMAN BERORIENTASI OBJEK



Oleh :

Aisyah Aqilah Rian Vania

21091397002 (2021B)

PROGRAM STUDI D4 MANAJEMEN INFORMATIKA

FAKULTAS VOKASI

UNIVERSITAS NEGERI SURABAYA

2022

Soal

1. Suatu program terdiri dari class Pegawai sebagai parent class, class Manajer dan class Kurir sebagai subclass. Buatlah suatu program yang menerapkan konsep polymorphic argument (Polymorphic arguments adalah tipe suatu parameter yang menerima suatu nilai yang bertipe subclass-nya)

Pemrograman :

```
1 <!-- AISYAH AQILAH RIAN VANIA -->
2 <!-- 21091397002 -->
3 <!-- 2021B / D4 Manajemen Informatika -->
4 <!-- Praktikum 5 no 1 -->
5
6 <!DOCTYPE html>
7 <html Lang="id">
8 <head>
9     <meta charset="UTF-8">
10    <meta http-equiv="X-UA-Compatible" content="IE=edge">
11    <meta name="viewport" content="width=device-width, initial-scale=1.0">
12    <title>Praktikum 5</title>
13 </head>
14 <body style="align-items: center;">
15     <div class="container">
16         <h2>Soal 1</h2>
17     </div>
18     <?php
19     class Pegawai
20     {
21         public $nama;
22         public function __construct($nama)
23         {
24             $this->nama = $nama;
25         }
26         public function getNama()
27         {
28             return $this->nama;
29         }
30     }
```

```
30 }
31 class Manajer extends Pegawai
32 {
33     public $tunjangan;
34     public function __construct($nama, $tunjangan)
35     {
36         parent::__construct($nama);
37         $this->tunjangan = $tunjangan;
38     }
39     public function getTunjangan()
40     {
41         return $this->tunjangan;
42     }
43 }
44 class Kurir extends Pegawai
45 {
46     public $gaji;
47
48     public function __construct($nama, $gaji)
49     {
50         parent::__construct($nama);
51
52         $this->gaji = $gaji;
53     }
54
55     public function getGaji()
56     {
57         return $this->gaji;
58     }
59 }
```

```
File Edit Selection View Go Run Terminal Help pboprak5_no1_aisyah.php - PBO - Visual Studio Code

EXPLORER
PBO
  nomor 1.php
  Nomor 2a.php
  Nomor 2b.php
  pboprak5_no1_aisyah.php
  pboprak5_no2_aisyah.php
  PRAK 3_NO 1_002.php
  PRAK 3_NO 2A_002.php
  PRAK 3_NO 2B_002.php

pboprak5_no1_aisyah.php
class Soal1
{
    public static
    function Proses($peg)
    {
        if ($peg instanceof Manajer)
        {
            $man = $peg;
            echo "<br>Nama manajer: ".$man->nama, "\n";
            echo "<br>Tunjangan: Rp. ".strval($man->tunjangan), "\n";
        }
        else if ($peg instanceof Kurir)
        {
            $kur = $peg;
            echo "<br>Nama kurir: ".$kur->nama, "\n";
            echo "<br>Gaji: Rp. ".strval($kur->gaji), "\n";
        }
    }
    public static
    function main($args)
    {
        echo "Aisyah Aqillah - 21091397002", "\n";
        echo "<br>", "<br>";
        $peg1 = new Manajer("Vania", 5500000);
        Soal1::Proses($peg1);
        echo "<br>", "<br>";
        $peg2 = new Kurir("Rian", 1230000);
        Soal1::Proses($peg2);
    }
}
```

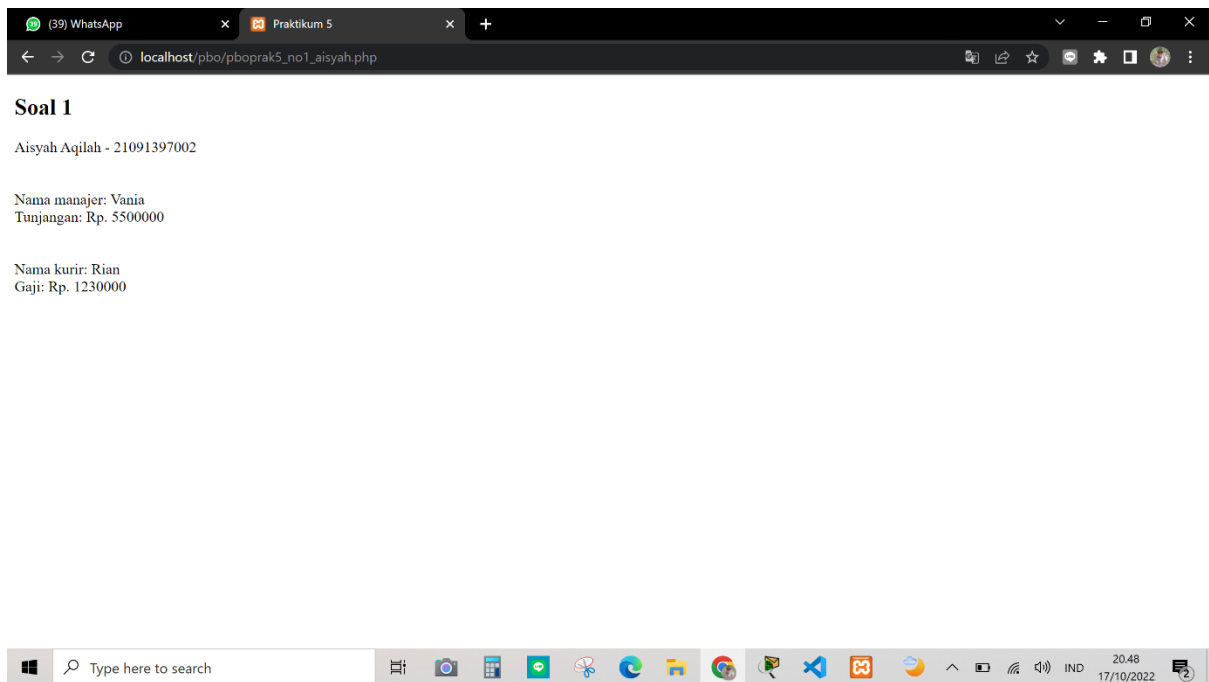
```
File Edit Selection View Go Run Terminal Help pboprak5_no1_aisyah.php - PBO - Visual Studio Code

EXPLORER
PBO
  nomor 1.php
  Nomor 2a.php
  Nomor 2b.php
  pboprak5_no1_aisyah.php
  pboprak5_no2_aisyah.php
  PRAK 3_NO 1_002.php
  PRAK 3_NO 2A_002.php
  PRAK 3_NO 2B_002.php

pboprak5_no1_aisyah.php
{
    $man = $peg;
    echo "<br>Nama manajer: ".$man->nama, "\n";
    echo "<br>Tunjangan: Rp. ".strval($man->tunjangan), "\n";
}
else if ($peg instanceof Kurir)
{
    $kur = $peg;
    echo "<br>Nama kurir: ".$kur->nama, "\n";
    echo "<br>Gaji: Rp. ".strval($kur->gaji), "\n";
}
}
public static
function main($args)
{
    echo "Aisyah Aqillah - 21091397002", "\n";
    echo "<br>", "<br>";
    $peg1 = new Manajer("Vania", 5500000);
    Soal1::Proses($peg1);
    echo "<br>", "<br>";
    $peg2 = new Kurir("Rian", 1230000);
    Soal1::Proses($peg2);
}
}
Soal1::main(array());
?>

</div>
</body>
</html>
```

Hasil :

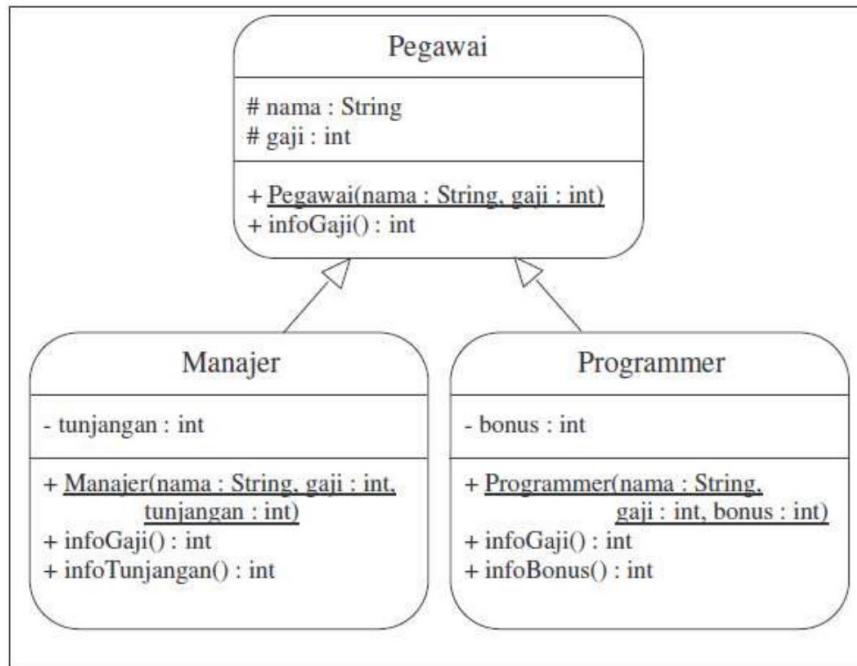


Analisa :

Pada kasus yang terdapat pada soal diatas implementasi dari polymorphic argument berada di class info dimana method info dibuat static agar pemanggilannya tidak memerlukan diinisiasi, sehingga bisa langsung dimasukkan menjadi parameter pada method info di class info.

Soal

2. Buat program berdasarkan UML berikut



Pemrograman :

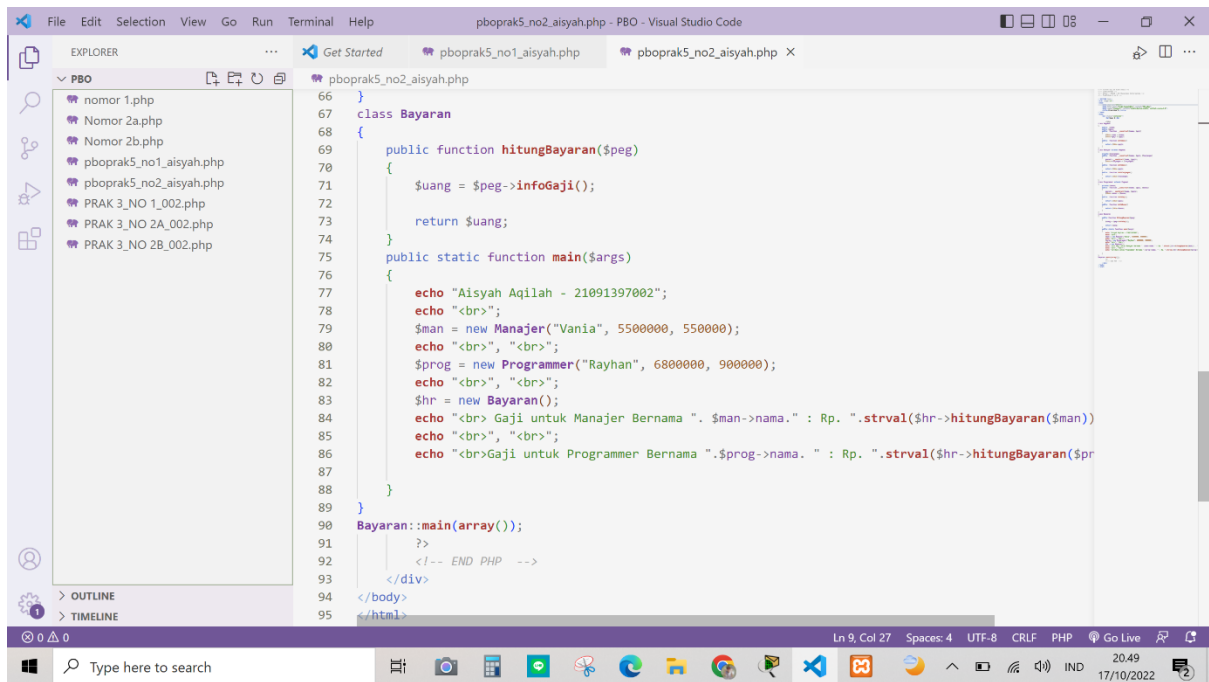
```
1 <!-- AISYAH AQILAH RIAN VANIA -->
2 <!-- 21091397002 -->
3 <!-- Kelas : 2021B / D4 Manajemen Informatika -->
4 <!-- Praktikum 5 no 2 -->
5
6 <!DOCTYPE html>
7 <html Lang="id">
8 <head>
9     <meta charset="UTF-8">
10    <meta http-equiv="X-UA-Compatible" content="IE=edge">
11    <meta name="viewport" content="width=device-width, initial-scale=1.0">
12    <title>Praktikum 5</title>
13 </head>
14 <body>
15     <div class="container">
16         <h2>Soal 2</h2>
17
18         <?php
19         class Pegawai
20         {
21             public $nama;
22             public $gaji;
23             public function __construct($nama, $gaji)
24             {
25                 $this->nama = $nama;
26                 $this->gaji = $gaji;
27             }
28             public function infoGaji()
29             {
30                 return $this->gaji;
```

The screenshot shows the Visual Studio Code editor with the file `pboprak5_no2_aisyah.php` open. The Explorer sidebar on the left shows a project named `PBO` with several files, including `pboprak5_no2_aisyah.php`. The main editor area displays the PHP code for the `Manajer` and `Programmer` classes, both extending the `Pegawai` class. The `Manajer` class has a private property `$tunjangan` and methods `__construct`, `infoGaji`, and `infoTunjangan`. The `Programmer` class has a private property `$bonus` and methods `__construct` and `infoGaji`. The status bar at the bottom indicates the current line is 9, column 27, with 4 spaces, UTF-8 encoding, and CRLF line endings. The system tray shows the date and time as 20:49 on 17/10/2022.

```
30         return $this->gaji;
31     }
32 }
33 class Manajer extends Pegawai
34 {
35     private $tunjangan;
36     public function __construct($nama, $gaji, $tunjangan)
37     {
38         parent::__construct($nama, $gaji);
39         $this->tunjangan = $tunjangan;
40     }
41     public function infoGaji()
42     {
43         return $this->gaji;
44     }
45     public function infoTunjangan()
46     {
47         return $this->tunjangan;
48     }
49 }
50 class Programmer extends Pegawai
51 {
52     private $bonus;
53     public function __construct($nama, $gaji, $bonus)
54     {
55         parent::__construct($nama, $gaji);
56         $this->bonus = $bonus;
57     }
58     public function infoGaji()
59     {
```

The screenshot shows the Visual Studio Code editor with the file `pboprak5_no2_aisyah.php` open. The Explorer sidebar on the left shows the same project `PBO`. The main editor area displays the PHP code for the `Bayaran` class and the `main` function. The `Bayaran` class has a public method `hitungBayaran` that takes a `$peg` object and returns a value. The `main` function is a static method that creates instances of `Manajer` and `Programmer`, and then uses the `hitungBayaran` method to calculate and display the total amount for each. The status bar at the bottom indicates the current line is 9, column 27, with 8 spaces, UTF-8 encoding, and CRLF line endings. The system tray shows the date and time as 20:49 on 17/10/2022.

```
60         return $this->gaji;
61     }
62     public function infoBonus()
63     {
64         return $this->bonus;
65     }
66 }
67 class Bayaran
68 {
69     public function hitungBayaran($peg)
70     {
71         $uang = $peg->infoGaji();
72     }
73     return $uang;
74 }
75 public static function main($args)
76 {
77     echo "Aisyah Aqilah - 21091397002";
78     echo "<br>";
79     $man = new Manajer("Vania", 5500000, 550000);
80     echo "<br>", "<br>";
81     $prog = new Programmer("Rayhan", 6800000, 900000);
82     echo "<br>", "<br>";
83     $hr = new Bayaran();
84     echo "<br> Gaji untuk Manajer Bernama ". $man->nama. " : Rp. ".strval($hr->hitungBayaran($man));
85     echo "<br>", "<br>";
86     echo "<br>Gaji untuk Programmer Bernama ". $prog->nama. " : Rp. ".strval($hr->hitungBayaran($prog));
87 }
88 }
89 }
```



```
66 }
67 class Bayaran
68 {
69     public function hitungBayaran($peg)
70     {
71         $uang = $peg->infoGaji();
72         return $uang;
73     }
74 }
75 public static function main($args)
76 {
77     echo "Aisyah Aqilah - 21091397002";
78     echo "<br>";
79     $man = new Manajer("Vania", 5500000, 5500000);
80     echo "<br>", "<br>";
81     $prog = new Programmer("Rayhan", 6800000, 9000000);
82     echo "<br>", "<br>";
83     $hr = new Bayaran();
84     echo "<br> Gaji untuk Manajer Bernama ". $man->nama. " : Rp. ".strval($hr->hitungBayaran($man))
85     echo "<br>", "<br>";
86     echo "<br>Gaji untuk Programmer Bernama ".$prog->nama. " : Rp. ".strval($hr->hitungBayaran($prog))
87 }
88 }
89 }
90 Bayaran::main(array());
91 ?>
92 <!-- END PHP -->
93 </div>
94 </body>
95 </html>
```

Hasil :



Soal 2

Aisyah Aqilah - 21091397002

Gaji untuk Manajer Bernama Vania : Rp. 5500000

Gaji untuk Programmer Bernama Rayhan : Rp. 6800000



Analisa :

Program diatas adalah penerapan inheritance dengan konsep overriding, dimana pemanggilan construct di masing-masing class turunan hanya akan menginisiasi properti yang dimiliki dengan visibilitas private dan properti lain yang diturunkan akan langsung diinisiasi dengan construct dari parentnya.