PERTEMUAN XVII
STRUKTUR KENDALI DAN LOOPING

A. Tujuan Pembelajaran

Pada pertemuan ini akan dijelaskan struktur kendali dan looping dalam Java Script. Setelah menyelesaikan materi pada pertemuan ini, mahasiswa mampu membuat program sederhana dengan menggunakan perintah percabangan dan perintah pengulangan .

B. Uraian Materi

1. Struktur Kendali

❑ IF
Perintah IF ada tiga macam, yaitu :

- IF dengan satu kondisi
  IF (kondisi)
  {

  }

- IF dengan dua kondisi
  IF (kondisi)
  {

  }
  Else
  {

  }

- IF lebih dari dua kondisi

```
IF (kondisi)
{
  --------
}
Elseif (kondisi)
{
  ---------
}
Else
{
  ---------
}
```

Latihan 1 :

```
<script type="text/javascript">
<!--
var myNum = 10;

if(myNum == 7){
    document.write("Lucky 7!");
}else{
    document.write("You're not very lucky today...");
}
//-->
</script>
```
Hasilnya :

You're not very lucky today …

Catatan : variabel myNum diawal bernilai 10, ketika bertemu perintah If kondisi ditanyakan apakah myNum sama dengan 7, jika kondisi benar maka yang tampil "Lucky 7!" tetapi jika kondisi tidak memenuhi maka tercetak "You're not very lucky today …".

Latihan 2 :

```
<script type="text/javascript">
//Jika  waktu < dari 10, Anda akan mendapat ucapan selamat pati
//Selain itu Anda akan mendapat ucapan selamat siang.

var d = new Date();
var time = d.getHours();
if (time < 10)
  {
  document.write("Good morning!");
  }
else
  {
  document.write("Good day!");
  }
</script>
```

Hasilnya :

Good day!

Latihan 3 :

```html
<html>
<head>
</head>
<body>

<script language="JavaScript" type="text/javascript">
var myName = prompt("Please enter your name", "budi");
var nb = prompt("Please nama barang", "");
var hs = prompt("Please harga satuan", "");
var jb = prompt("Please jumlah barang", "");
hb=hs*jb;
if (hb>500000)
{
   disc=(5/100*hb);
}
else if(hb>300000)
{
   disc=(2/100*hb);
 }
else
{
   disc=(0.5/100*hb);
 }
hbb=hb-disc;
```

Tampilan browser :

```javascript
document.write("<font size=5 color='blue'><img src='keranjang.jpg' width='75' height='60'>Penjualan Harga Barang</font>","<br>");
document.write("<font size=4 color='sienna'><pre>");
document.write("=================================","<br>");
document.write("Nama barang        = ",nb,"<br>");
document.write("Harga satuan       = ",hs,"<br>");
document.write("Jumlah Barang    = ",jb,"<br>");
document.write("Harga Barang       = ",hb,"<br>");
document.write("Harga Discount     = ",disc,"<br>");
document.write("Harga Barang Bersih      = ",hbb,"<br>");
document.write("=================================","<br>");
document.write("</font></pre>");
document.write("<font size=3 color='red'><blink>");
document.write("Created by "+myName);
document.write("</font></blink>");
</script>
</body>
</html>
```
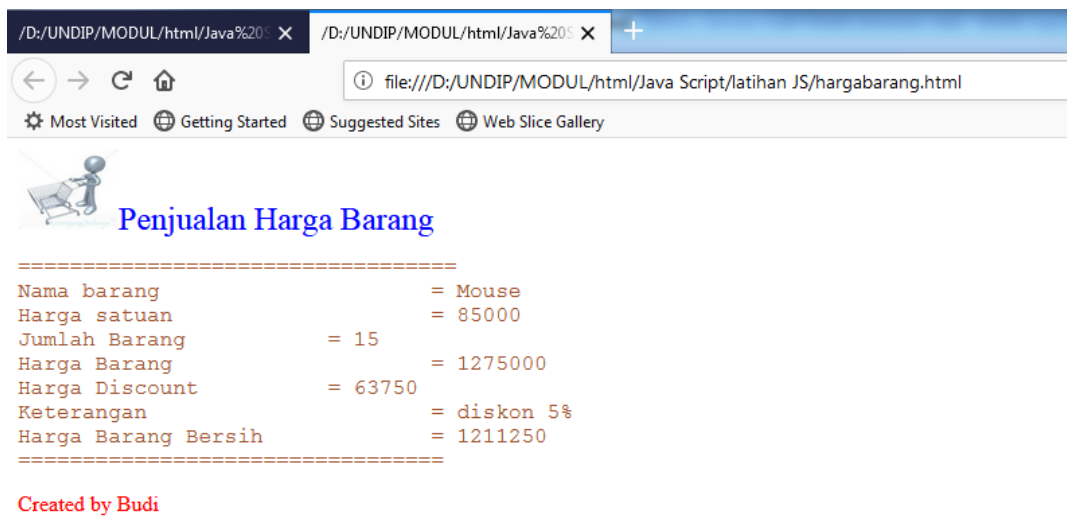
Gambar 56 Tampilan Input

Tampilan Browser :

Gambar 57 Tampilan Output Harga Barang

c. SWITCH ... CASE

```
switch(n)
{
case 1:
  execute code block 1
  break;
case 2:
  execute code block 2
  break;
default:
  code to be executed if n is different from case and 2
}
```

Latihan 4 :

```
<script type="text/javascript">
var d=new Date();
var theDay=d.getDay();
switch (theDay)
{
case 5:
  document.write("Finally Friday");
  break;
case 6:
  document.write("Super Saturday");
  break;
case 0:
  document.write("Sleepy Sunday");
  break;
default:
  document.write("I'm looking forward to this weekend!");
}
</script>
```

Hasilnya :

      Finally Friday

Catatan : sesuai tanggal yang aktif pada system

Latihan 5:

```
alert("What I Learned In College...")
//Please change the subject ;-)
var subject = "Humility"
switch (subject) {
case "Deep Thoughts" : alert("On Deep thoughts : A day without sunshine is like
night.");
break;
case "Problem Solving" : alert("On Problem Solving : When the only tool you own is a
hammer, every problem begins to resemble a nail. - Abraham Maslow")
break;
case "Materialism" : alert("On Materialism : He who dies with the most toys, is,
nonetheless, still dead.")
break;
case "Infinity" : alert("On Infinity : If you had everything, where would you keep it?")
break;
case "Economics" : alert("On Economics : The cost of living hasn't affected its
popularity.")
break;
case "Revisionist History" : alert("On Revisionist History : What was sliced bread the
greatest thing since?")
break;
case "Literature" : alert("On Literature : This is not a novel to be tossed aside lightly.
It should be thrown with great force. - Dorothy Parker")
break;
case "Humility" : alert("On Humility : To err is human, to moo bovine.")
break;
```

```
case "Excuses" : alert("On Excuses : I can't complain, but sometimes I still do. - Joe
Walsh")
break;
case "Numbers" : alert("On Numbers : 2 is not equal to 3 - not even for very large
values of 2.")
break;
default:alert("I learnt nothing in college");
}
```
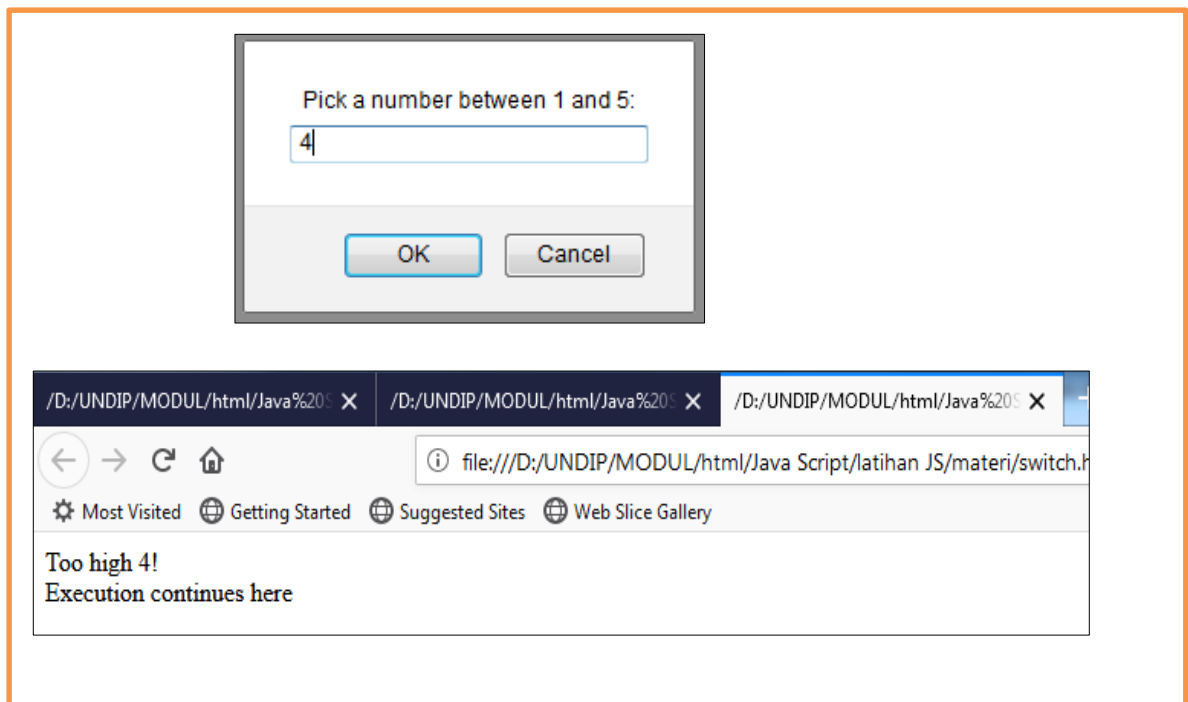
Latihan 6 :

```
<script type="text/javascript">
var red = 1;
var result = null;
switch (red) {
case 1: result = 'one'; break;
case 2: result = 'two'; break;
default: result = 'unknown';
}
document.write(result);
</script>
```

Latihan 7 :

```html
<html>
<body>
<script language="JavaScript" type="text/javascript">
var secretNumber = prompt("Pick a number between 1 and 5:", "");
secretNumber = parseInt(secretNumber);
switch (secretNumber)
{
case 1:
document.write("Too low! 1");
break;
case 2:
document.write("Too low! 2");
break;
case 3:
document.write("You guessed the secret number!");
break;
case 4:
document.write("Too high 4!");
break;
case 5:
document.write("Too high! 5");
break;
default:
document.write("You did not enter a number between 1 and 5.");
break;
}
document.write("<BR>Execution continues here");
</script>
</body>
</html>
```

Hasil tampilan browser

Gambar 58 Tampilan Output Memasukkan angka 4

2. LOOP

```
1. For Loop
   for(INITIALIZATION ; CONDITION ; NEXT)  {
   code to be executed
   }
```

Looping merupakan proses yang akan berjalan terus apabila kondisi memenuhi, dimulai dari nilai awal (initialization) berakhir dengan kondisi dengan pertambahan bisa increament (penambahan) atau decreament (pengurangan)

Latihan 8 :

```
<html>
<body>
<script type="text/javascript">
var i=0;
```

```
for (i=0;i<=5;i++)
{
document.write("The number is " + i);
document.write("<br>");
}
</script>
</body>
</html>
```

Hasil output :

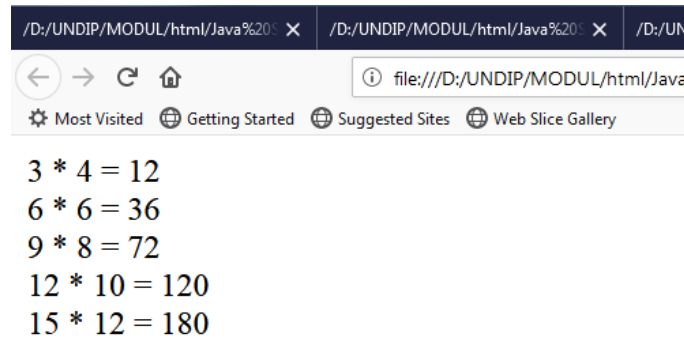The number is 0

The number is 1

The number is 2

The number is 3

The number is 4

The number is 5

Catatan :

i dimulai dengan angka 0, dan berakhir sampai dengan i <= 5 dengan pertambahan i++ (i=i+1). Maka outuput yang dihasilkan tulisan The number is dengan angka diakhirnya 0 sampai dengan 5.

Contoh For yang lain :

```
<html>
<body>
<script type="text/javascript">
j=4
for(i=3;i<=15; i+=3)
{
hasil=i*j;
document.write ( i + " * " + j + " = " + hasil + "<br>");
j+=2;
}
</script>
</body>
</html>
```

Output yang dihasilkan :

Gambar 59 Tabel perkalian

Latihan 9 :

```html
<html>
<body>
<script type="text/javascript">
alert("The Student Mind During A Final Exam");
//Make an array with all the thoughts
var thoughts = new Array("The prof. never covered this section!",
"Actual knowledge on the subject.",
"The T.A.'s kinda cute!",
"I knew I should have read the book!",
"Soon this will all be behind me!",
"I hope the curve is really low!",
"PANIC ZONE!",
"Prayers for a miracle flood, fire, tornado, hurricane, earthquake...etc...",
"Eeny, meeny, miny moe...",
"Summer break!");
//Tampilkan semua satu per satu
for(i=0;i<10;i++){
 alert("Thought #"+(i+1)+": "+thoughts[i]);

}
</script>
</body>
</html>
```

2. While

```
while(CONDITION) {
    code to be executed
}
```

Dengan while akan cek kondisi terlebih dahulu, jika kondisi memenuhi maka akan menjalankan script yang berada dalam { ….}, apabila kondisi sudah tidak memenuhi maka akan keluar dari {…}.

Latihan 10 :

```
<html>
<body>
<script type="text/javascript">
var i=0;
while (i<=5)
  {
  document.write("The number is " + i);
  document.write("<br>");
  i++;
  }
</script>
</body>
</html>
```

Output yang dihasilkan :

Sama seperti perintah for, yaitu :

       The number is 0

       The number is 1

       The number is 2

       The number is 3

       The number is 4

       The number is 5

3. Do .. While

```
do
 {
 code to be executed
 }
while (variable<=endvalue);
```

Perintah do .. while, berbeda dengan while. Dengan do maka perintah akan dikerjakan terlebih dahulu baru cek kondisi, jika kondisi sudah tidak memenui maka script keluar dari {..}, tetapi jika masih memenuhi akan looping kembali.

Latihan 9 :

```html
<html>
<body>
<script type="text/javascript">
var i=0;
do
 {
 document.write("The number is " + i);
 document.write("<br>");
 i++;
 }
while (i<=5);
</script>
</body>
</html>
```

- Break
  Break digunakan untuk keluar dari proses loop dan melanjutkan untuk melakukan perintah selanjutkan setelah loop.

```javascript
for (i = 0; i < 10; i++) {
  if (i === 3) { break; }
  text += "The number is " + i + "<br>";
}
```

Contoh :

```html
<html>
<body>

<h2>JavaScript Loops</h2>

<p>Perintah Loop dalam <b> break</b></p>

<p id="latihan"></p>

<script>
var text = "";
var i;
for (i = 0; i < 10; i++) {
  if (i === 3) { break; }
  text += "The number is " + i + "<br>";
}
document.getElementById("latihan").innerHTML = text;
</script>
Sudah keluar dari break
</body>
</html>
```

Tampilan browser

JavaScript Loops

Perintah Loop dalam **break**

The number is 0
The number is 1
The number is 2

Sudah keluar dari break

- Contiue
  Perintah continue tidak keluar dari loop tapi akan melanjutkan perintah dibawahnya.

```javascript
for (i = 0; i < 10; i++) {
  if (i === 3) { continue; }
  text += "The number is " + i + "<br>";
}
```

Contoh

```html
<html>
<body>

<h2>JavaScript Loops</h2>

<p>Perintah <b>continue</b> dalam looping</p>

<p>loop akan skip pada langkah  where i = 3.</p>

<p id="latihan"></p>

<script>
var text = "";
var i;
for (i = 0; i < 10; i++) {
  if (i === 3) { continue; }
  text += "The number is " + i + "<br>";
}
document.getElementById("latihan").innerHTML = text;
</script>
kembali ke html
</body>
</html>
```

Tampilan browser :

JavaScript Loops

Perintah **continue** dalam looping

loop akan skip pada langkah where i = 3.

The number is 0
The number is 1
The number is 2
The number is 4
The number is 5
The number is 6
The number is 7
The number is 8
The number is 9

kembali ke html

C. Soal Latihan/Tugas

Buatlah halaman website untuk menampilkan deret bilangan genap yang habis dibagi 3, hitung banyak bilangan tersebut dan hitung pula jumlah nilai bilangan tersebut.

Catatan : nilai awal dan nilai akhir deret diinput menggunakan prompt.

Output yang dihasilkan :

Nilai Awal : ……..

Nilai Akhir : ……..

Deret yang tampil : .. … … … …

Jumlah deret bilangan : … bilangan

Jumlah nilai bilangan tersebut : …..

D. Referensi

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