



CMJ251-Manajemen Jaringan Mobile

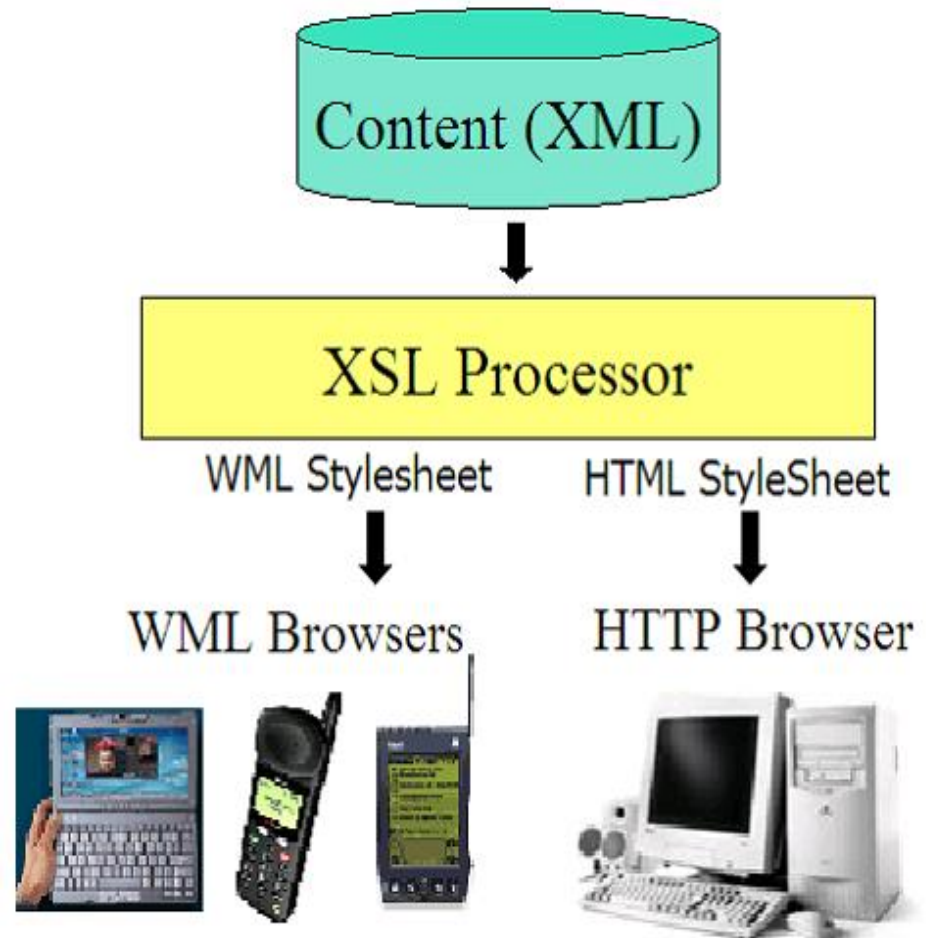
www.esaunggul.ac.id

Dosen Pengampu :

5165-Kundang K Juman, Ir, MMSI
Prodi Teknik Informatika Fakultas Ilmu Komputer

WML (Wireless Markup Language)

- Bahasa berbasis tag:
 - Manajemen Layar (text, image)
 - Input Data (text, selection lists, dll.)
 - Dukungan Hyperlink & navigasi
- Didasarkan pada XML
- Berekstensi .wml



WML (2)

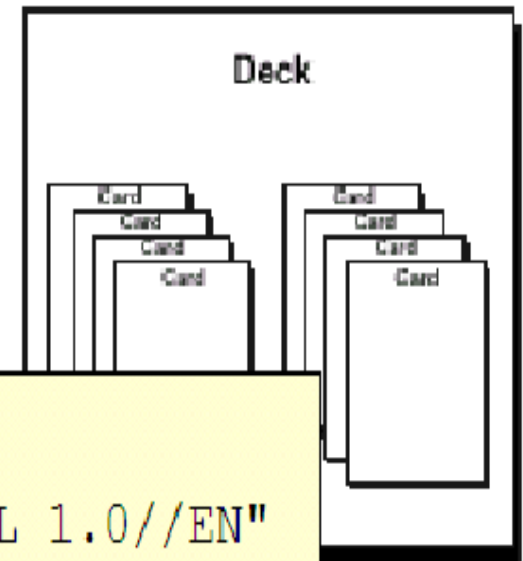
- Card dan Deck
 - Dokumen berisi beberapa card
 - Interaksi user dibagi dalam card
 - Navigasi eksplisit antar card
 - deck sama seperti halaman HTML, yaitu unit pengiriman content
- Manajemen event, variabel dan state
- Ketika halaman WML diakses dari mobile phone, semua card didownload dari WAP server.
- Semua card harus berisi
 - Prolog dokumen : `<?xml version = "1.0"?>`
 - Document type definition (DTD)
 - Elemen `<WML>`

WML Structure

WML File Structure

```
<?xml version="1.0"?>
<!DOCTYPE WML PUBLIC "-//WAPFORUM//DTD WML 1.0//EN"
    "http://www.wapforum.org/DTD/wml.xml">

<WML>
    ...
</WML>
```



Address file:///C:/DOCUME~1/@nton/Desktop/coba.wml

Coba

NEXT

Contoh WML

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
  <card id="card1">
    <do type="accept" label="NEXT">
      <go href="#card2"/>
    </do>
    <p>Coba</p>
  </card>
  <card id="card2">
    <do type="accept">
      <go href="#card1?send=$type"/>
    </do>
    <select name="type">
      <option value="em">Email</option>
      <option value="ph">Phone</option>
      <option value="fx">Fax</option>
    </select>
  </card>
</wml>
```

Address file:///C:/DOCUME~1/@nton/Desktop/coba.wml#card2

Email

accept

Address file:///C:/DOCUME~1/@nton/Desktop/coba.wml#card1?send=ph

Coba

NEXT

Tag Dasar

- `<wml> </wml>` mendefinisikan awal dan akhir dari deck, seperti pada `<html></html>`
- `<card> </card>` mendefinisikan awal dan akhir dari card
- content type dari teks WML adalah **text/vnd.wap.wml**
- Kita dapat menciptakan sebuah file WML yang terbentuk dengan mengirimkan content type tersebut di atas dari server script Anda.

Card

Membuat card : `<card> ...</card>`

Atribut card

<code>title="judul card"</code>	menampilkan topik tertentu dari halaman WAP
<code>id="nama card"</code>	identifikasi card untuk keperluan tujuan navigasi
<code>ontimer="dokumen tujuan"</code>	menyatakan tujuan card setelah waktu tertentu
<code>newcontext="true/false"</code>	mengatur penggunaan isi variable untuk dokumen WAP

Linking card

Absolute Link	<code>Yahoo mail </code>
Relative Link	<code>Recent Posts</code>
In-Document Link	<code>Announcements</code>
Relative Link to a Particular Card	<code>Recent Posts</code>

Contoh WML (teks)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>

<card id="HTML" title="HTML Tutorial">
<p>
Our HTML Tutorial is an award winning
tutorial from W3Schools.
</p>
</card>

<card id="XML" title="XML Tutorial">
<p>
Our XML Tutorial is an award winning
tutorial from W3Schools.
</p>
</card>

</wml>
```

Address	file:///C:/Documents and Settings/@nton/Desktop/coba2.wml
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Our HTML Tutorial is an award winning tutorial from W3Schools.

Contoh WML (teks)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>

<card id="no1" title="Card 1">
<p>Hello World!</p>
</card>

<card id="no2" title="Card 2">
<p>Welcome to our WAP Tutorial!</p>
</card>

</wml>
```

----- Card 1 -----
Hello World!

Contoh WML (teks)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Paragraphs">

<p>
This is a paragraph
</p>
<p>
This is another<br/>with a line break
</p>

</card>
</wml>
```

----- Paragraphs -----

This is a paragraph

This is another
with a line break

Teks

Memformat Text

- Physical Style

<code>..< code=""><></code>	bold (<u>menebalkan teks</u>)
<code><i>..<i>< code=""></i><></code>	italic (<u>membuat teks miring</u>)
<code><u>...</u></code>	underline
<code><big>..< code=""><></code>	<u>membesarkan teks</u>
<code><small>...</small></code>	<u>mengecilkan teks</u>

- Logical Style

<code>..< code=""><></code>	<u>memberi tekanan pda teks</u>
<code><i>..<i>< code=""></i><></code>	<u>memberikan teks dengan penekanan yg kuat</u>

Contoh WML (format teks)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Formatting">

<p>
normal<br/>
<em>emphasized</em><br/>
<strong>strong</strong><br/>
<b>bold</b><br/>
<i>italic</i><br/>
<u>underline</u><br/>
<big>big</big><br/>
<small>small</small>
</p>

</card>
</wml>
```

----- Formatting -----

normal
emphasized
strong
bold
italic
underline
big
small

Special Character

Character	Character element
<	<code>&lt;</code> ; (less than)
>	<code>&gt;</code> ; (greater than)
'	<code>&apos;</code> ; (apostrophe)
"	<code>&quot;</code> ; (quotation marks)
&	<code>&amp;</code> ; (ampersand)
\$	<code>&dollar;</code> (dollar sign)
Non breaking space	<code>&nbsp;</code> ;
Soft hyphen	<code>&shy;</code>

Contoh WML (table)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Table">

<p>
<table columns="3">
<tr>
<td>Cell 1</td>
<td>Cell 2</td>
<td>Cell 3</td>
</tr>
</table>
</p>

</card>
</wml>
```

----- Table -----		
Cell 1	Cell 2	Cell 3

Links

- Digunakan untuk menghubungkan antar dokumen, atau dalam satu dokumen
- Sintaks:
 - `[teks]`
- Dalam satu dokumen:
 - Menggunakan tanda #
 - `[teks]`

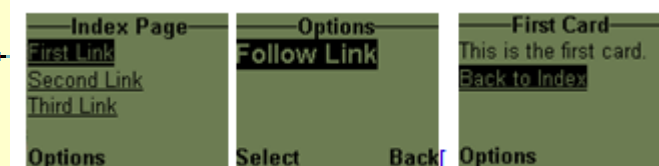
```

<?xml version="1.0" encoding="iso-8859-1" ?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
    "http://www.wapforum.org/DTD/wml_1.1.xml">
<wml>
<card id="index" title="Index Page">
<p>
    <a href="#first">First Link</a><br/>
    <a href="#second">Second Link</a><br/>
    <a href="#third">Third Link</a>
</p>
</card>
<card id="first" title="First Card">
<p>
    This is the first card.<br/>
    <a href="#index">Back to Index</a>
</p>
</card>
<card id="second" title="Second Card">
<p>
    This is the second card.<br/>
    <a href="#index">Back to Index</a>
</p>
</card>
<card id="third" title="Third Card">
<p>
    This is the third card.<br/>
    <a href="#index">Back to Index</a>
</p>
</card>
</wml>

```

Links

Digunakan untuk menghubungkan antar dokumen




```

1  <?xml version="1.0"?>
2  <!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD
3      WML 1.2//EN" "http://www.wapforum.org/DTD/wml12.dtd">
4
5  <!-- Fig. 13.7: fig13_7.wml -->
6  <!-- Using Links -->
7
8  <wml>
9      <card>
10         <p>
11             Search Engines:<br />
12
13             <!-- create links -->
14             <a accesskey = "1" href = "http://mobile.sports.com"
15                 title = "Sports">
16                 Sports</a><br />
17             <a accesskey = "2"
18                 href = "http://info.wapja
18                 title = "SciFi">SciFi</a>
19
20         </p>
21     </card>
22 </wml>

```

Link to **mobile.sports.com**.

The value of the **title** attribute will label the soft key on the phone that will activate the link.

The **accesskey** attribute programs a key on the keypad that can be used to select the link.



Image

- Menyisipkan image atau local icon aplikasi dalam tampilan teks
 - 1-bit BMP format, bernama WBMP
 - Gunakan konverter: WBMP Converter
- Image diabaikan oleh piranti non bitmap
 - Cek HTTP_ACCEPT untuk MIME
“image/bmp”
- Tag: ``

Image

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Image">

<p>
This is an image

in a paragraph
</p>

</card>
</wml>
```

Address file:///C:/Documents and Settings/anton/Desktop/coba7.wml

This is an image



in a paragraph

Input type (teks)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Input">

<p>
Name: <input name="Name" size="15"/><br/>
Age:  <input name="Age" size="15" format="*N"/><br/>
Sex:  <input name="Sex" size="15"/>
</p>

</card>
</wml>
```

Address	file:///C:/Documents and Settings/@nton/Desktop/coba8.wml
Name:	<input type="text"/>
Age:	<input type="text"/>
Sex:	<input type="text"/>

Input type (select)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Selectable List 1">

<p>
<select>
<option value="htm">HTML Tutorial</option>
<option value="xml">XML Tutorial</option>
<option value="wap">WAP Tutorial</option>
</select>
</p>

</card>
</wml>
```

Address file:///C:/Documents and Settings/@nton/Desktop/coba9.wml

HTML Tutorial ▼
HTML Tutorial
XML Tutorial
WAP Tutorial

Input (select multiple)

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card title="Selectable List 2">

<p>
<select multiple="true">
<option value="htm">HTML Tutorial</option>
<option value="xml">XML Tutorial</option>
<option value="wap">WAP Tutorial</option>
</select>
</p>

</card>
</wml>
```

Address file:///C:/Documents and Settings/@nton/Desktop/coba10.wml

- ☐ HTML Tutorial
- ☐ XML Tutorial
- ☐ WAP Tutorial

WML task

- Task <go> menyatakan tindakan pindah ke card baru
- Task <prev> menyatakan tindakan kembali ke card sebelumnya
- Task <refresh> memperbarui beberapa variabel card tertentu
 - Jika beberapa variabel sedang diperlihatkan pada layar, task ini juga memperbarui layar
- Task <noop> mengatakan tidak ada yang perlu dikerjakan

Go task

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card>
<p>
  <anchor>
    Go To Test
    <go href="test.wml"/>
  </anchor>
</p>
</card>
</wml>
```

Prev task

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card>
<p>
  <anchor>
    Previous Page
    <prev/>
  </anchor>
</p>
</card>
</wml>
```

Refresh task

The example below uses an `<anchor>` tag to add a "Refresh this page" link to the card. When the user clicks on the link, he or she refreshes the page and the value of the variable `x` will be set to 30:

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card>
<p>
  <anchor>
    Refresh this page
    <go href="thispage.wml"/>
    <refresh>
      <setvar name="x" value="30"/>
    </refresh>
  </anchor>
</p>
</card>
</wml>
```

Noop task

The example below uses a <do> tag to add a "Back" link to the card. When the user clicks on the "Back" link, he or she should be taken back to the previous card. But the <noop> tag prevents this operation; when the user clicks on the "Back" link nothing will happen:

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
<card>
<p>
  <do name="back" type="prev" label="Back">
    <noop/>
  </do>
</p>
</card>
</wml>
```

Contoh Variabel

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>

<card id="card1" title="Tutorial">
<do type="accept" label="Answer">
  <go href="#card2"/>
</do>
<p>
<select name="name">
  <option value="HTML">HTML Tutorial</option>
  <option value="XML">XML Tutorial</option>
  <option value="WAP">WAP Tutorial</option>
</select>
</p>
</card>

<card id="card2" title="Answer">
<p>
You selected: $(name)
</p>
</card>

</wml>
```

Address file://C:\Documents and Settings\@nton\Desktop\coba13.wml

XML Tutorial ▼

Answer

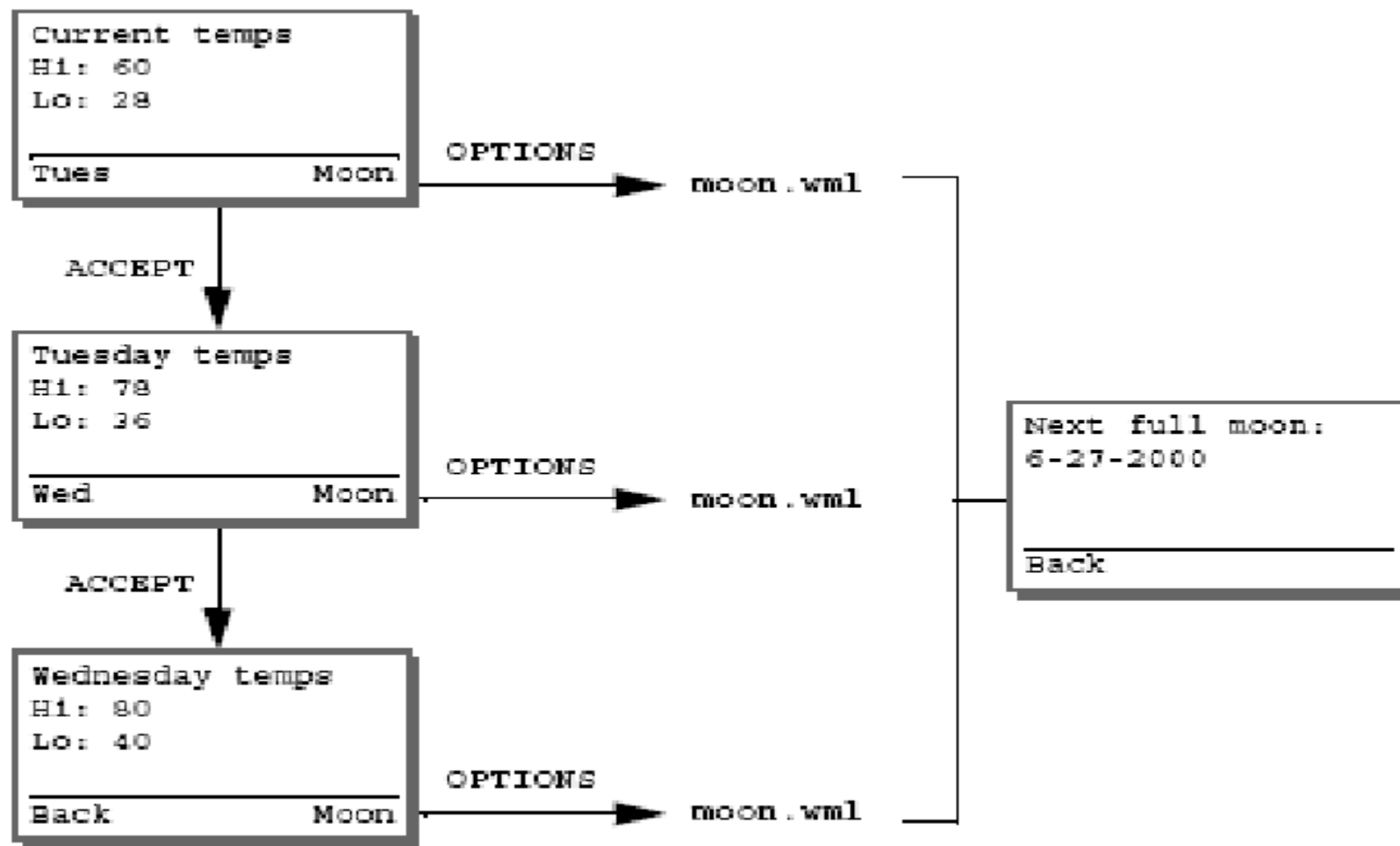
Address file://C:\Documents and Settings\@nton\Desktop\coba13.wml#card2

You selected: WAP

Template

- Mendefinisikan tindakan dan event untuk semua card dalam sebuah deck
- Selalu ada tampilan yang sama untuk beberapa card

Skenario



Template

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

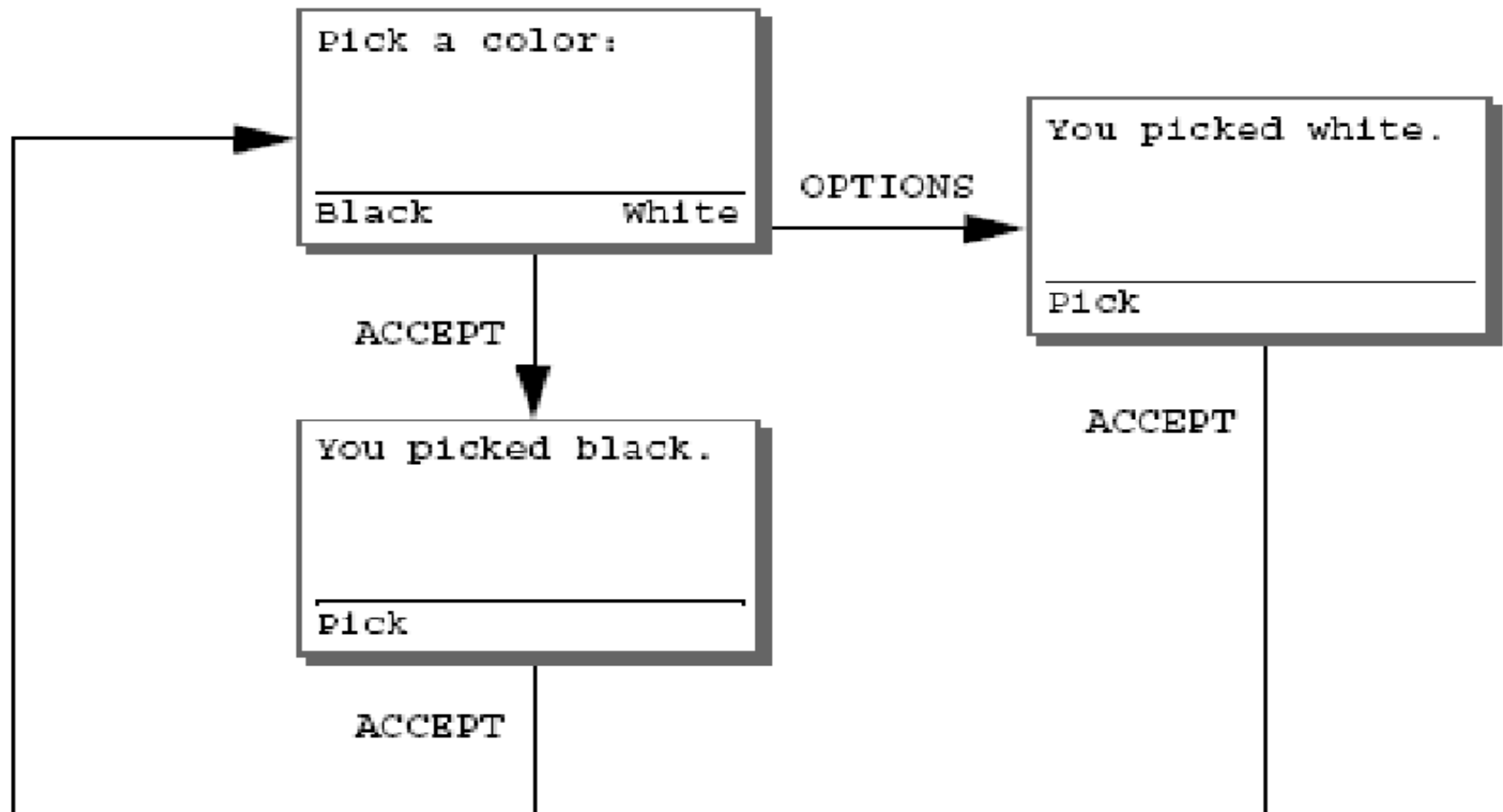
<wml>
<template>
  <do type="options" label="Moon">
    <go href="coba14.wml"/>
  </do>
</template>

<card id="current" title="Now">
<p>
  Current temp: 25
  <do type="accept" label="Tues">
    <go href="#tues"/>
  </do>
</p>
</card>

<card id="tues" title="Tues">
<p>
  Tues temp: 30
  <do type="accept" label="wed">
    <go href="#wed"/>
  </do>
</p>
</card>

<card id="wed" title="wed">
<p>
  wed temp: 26
</p>
</card>
</wml>
```


Skenario



Template

```
<?xml version="1.0"?>
<!DOCTYPE wml PUBLIC "-//WAPFORUM//DTD WML 1.1//EN"
"http://www.wapforum.org/DTD/wml_1.1.xml">

<wml>
  <template> |
    <do type="accept" label="Pick">
      <prev/>
    </do>
  </template>
  <card id="card1">
    <p>Pick a color: </p>
    <do type="accept" label="Black">
      <go href="#card2"/>
    </do>
    <do type="accept" label="white">
      <go href="#card3"/>
    </do>
  </card>
  <card id="card2">
    <p>You picked black.</p>
  </card>
  <card id="card3">
    <p>You picked white.</p>
  </card>
</wml>
```