VoiceXML Example : BlackJack game

Play against the VoiceXML browser

```
<?xml version="1.0" ?>
<vxml version="2.0" xmlns="http://www.w3.org/2001/vxml">


<property name="inputmodes" value="dtmf"/>
<var name="cards"/> <!-- array of cards -->
<var name="currCard" expr="0"/> <!-- current card -->
<var name="userCards"/> <!-- cards of the user -->
<var name="compCards"/> <!-- cards of computer -->


<script> <![CDATA[
  function shuffle() {
    for (var i = 0; i < 52; i++) {
      cards[i] = i;
    }
    for (var i = 0; i < 51; i++) {
      var j = Math.floor(Math.random()*(52-i))+i;
      var k = cards[i];
      cards[i] = cards[j];
      cards[j] = k;
    }
  }
  function cardDescription (cardNum) {
    var suit = Math.floor (cardNum / 13);
    var rank = cardNum % 13;
    var cardDesc;
    switch (rank) {
      case 0: cardDesc = "2 of "; break;
      case 1: cardDesc = "3 of "; break;
      case 2: cardDesc = "4 of "; break;
      case 3: cardDesc = "5 of "; break;
      case 4: cardDesc = "6 of "; break;
      case 5: cardDesc = "7 of "; break;
      case 6: cardDesc = "8 of "; break;
      case 7: cardDesc = "9 of "; break;
      case 8: cardDesc = "10 of "; break;
      case 9: cardDesc = "jack of "; break;
      case 10: cardDesc = "queen of "; break;
      case 11: cardDesc = "king of "; break;
      case 12: cardDesc = "ace of "; break;
    }
    switch (suit) {
      case 0: cardDesc += "clubs"; break;
      case 1: cardDesc += "hearts"; break;
      case 2: cardDesc += "diamonds"; break;
      case 3: cardDesc += "spades"; break;
    }
```

```
    return cardDesc;
  }
  function newCardForUser() {
    userCards[userCards.length] = cards[currCard];
    currCard++;
  }
  function lastUserCardDesc() {
    return cardDescription(userCards[userCards.length-1]);
  }
  function newCardForComp() {
    compCards[compCards.length] = cards[currCard];
    currCard++;
  }
  function lastCompCardDesc() {
    return cardDescription(compCards[compCards.length-1]);
  }
  function valOfCard (cardNum) {
    var rank = cardNum % 13;
    switch (rank) {
      case 9:  return 10;
      case 10: return 10;
      case 11: return 10;
      case 12: return 11;
      default: return rank+2;
    }
  }
  function valOfCards (c) {
    var val = 0;
    var i;
    var aceNum = 0;
    for (var i = 0; i < c.length; i++) {
      var v = valOfCard(c[i]);
      if (v == 11) aceNum++;
      val += v;
    }
    while (val > 21 && aceNum > 0) {
      val -= 10; // ace can be counted as 1 instead of 11 if needed
      aceNum--;
    }
    return val;
  }
  function softHand (c) { // are all aces counted as 11?
    var val = 0;
    var i;
    var aceNum = 0;
    for (var i = 0; i < c.length; i++) {
      var v = valOfCard(c[i]);
      if (v == 11) aceNum++;
      val += v;
    }
    while (val > 21 && aceNum > 0) {
```

```
        val -= 10; // ace can be counted as 1 instead of 11 if needed
        aceNum--;
      }
      return aceNum > 0;
    }
    function valOfUserCards() {
      return valOfCards (userCards);
    }
    function valOfCompCards() {
      return valOfCards (compCards);
    }
    function shouldCompTakeCard() { // strategy of the computer
      if (softHand (compCards)) return true;
      var val = valOfCompCards();
      if (val <= 11) return true;
      if (Math.random() < 0.25) return true; // risk
      if (Math.random() < 1/(val-11)) return true;
      return false;
    }
]]> </script>

<form id="start">
  <block>
    <prompt>Welcome to blackjack</prompt>
    <script>
      cards = new Array(52);
    </script>
    <goto next="#new_game"/>
  </block>
</form>

<form id="new_game">
  <field name="yesno" type = "boolean">
    <noinput> Hey, don't sleep and say something! </noinput>
    <nomatch> I didn't understand you.</nomatch>
    <prompt>Do you want to play a new game?</prompt>
    <filled>
      <if cond="yesno == 'true'">
        <goto next="#start_game"/>
      <else/>
        <goto next="#end"/>
      </if>
    </filled>
  </field>
</form>

<form id="start_game">
  <block>
    <prompt>
      I am shuffeling the cards. We start with two cards for each.
    </prompt>
```

```
    <script>
      userCards = new Array;
      compCards = new Array;
      shuffle();
      newCardForUser();
      newCardForUser();
      newCardForComp();
      newCardForComp();
    </script>
    <prompt>
      You got <value expr="cardDescription(userCards[0])"/>
      and <value expr="cardDescription(userCards[1])"/>.
    </prompt>
    <goto next="#game_eval"/>
  </block>
</form>

<form id="game_eval">
  <block>
    <var name="userVal" expr="valOfUserCards()"/>
    <var name="compVal" expr="valOfCompCards()"/>
    <prompt>Value of your cards is <value expr="userVal"/></prompt>
    <if cond="userVal &gt; 21">
      <prompt>You lost the game.</prompt>
      <goto next="#new_game"/>
    </if>
    <if cond="userVal == 21 || compVal &gt; 21">
      <prompt>Value of my cards is <value expr="compVal"/></prompt>
      <prompt>You won the game!</prompt>
      <goto next="#new_game"/>
    </if>
    <if cond="compVal == 21">
      <prompt>Value of my cards is <value expr="compVal"/></prompt>
      <prompt>You lost the game.</prompt>
      <goto next="#new_game"/>
    </if>
    <goto next="#decision"/>
  </block>
</form>

<form id="decision">
  <field name="userDecision" type = "boolean">
    <noinput> Hey, don't sleep and say something!</noinput>
    <nomatch> I didn't understand you. </nomatch>

    <prompt>Do you want one more card?</prompt>

    <filled>
      <if cond="userDecision">
        <script>newCardForUser();</script>
        <if cond="valOfUserCards() &gt;= 21">
```

```
          <prompt>
            You got <value expr="lastUserCardDesc()"/>
          </prompt>
          <goto next="#game_eval"/>
        </if>
      </if>
      <var name="compDecision" expr="shouldCompTakeCard()"/>
      <if cond="compDecision == 'true'">
        <script>newCardForComp();</script>
      </if>
      <if cond="userDecision &amp;&amp; compDecision == 'true'">
        <prompt>
          I am giving you <value expr="lastUserCardDesc()"/> and I also take
          a card.
        </prompt>
      <elseif cond="userDecision &amp;&amp; compDecision == 'false'"/>
        <prompt>
          I am giving you <value expr="lastUserCardDesc()"/>. I will take
          no card.
        </prompt>
      <elseif cond="userDecision == 'false' &amp;&amp; compDecision ==
'true'"/>
        <prompt>OK, you don't want a card, but I will take one.</prompt>
      <else/>
        <prompt>I also don't want more cards. The game is finished.</prompt>
        <goto next="#game_finished"/>
      </if>
      <goto next="#game_eval"/>
    </filled>

  </field>
</form>

<form id="game_finished">
  <block>
    <var name="userVal" expr="valOfUserCards()"/>
    <var name="compVal" expr="valOfCompCards()"/>
    <prompt>Value of your cards is <value expr="userVal"/></prompt>
    <prompt>Value of my cards is <value expr="compVal"/></prompt>
    <if cond="userVal &gt;= compVal">
      <prompt>You won the game!</prompt>
    <else/>
      <prompt>You lost the game.</prompt>
    </if>
    <goto next="#new_game"/>
  </block>
</form>

<form id="end">
  <block>
    I hope you enjoyed the game. Goodbye.
```

```
    </block>
 </form>

 </vxml>
```

The VoiceXML browser will use the ECMA script to process the game logic. The BlackJack rules are accessible here : wikipedia

Download : blackjack.vxml

From:
https://wiki.voximal.com/ - **Voximal documentation**

Permanent link:
https://wiki.voximal.com/doku.php?id=legacy:vxi_examples:blackjack

Last update: **2017/07/28 23:53**