

Διαδίκτυο και Εφαρμογές

1<sup>η</sup> Εργαστηριακή Άσκηση

Δυναμικές Σελίδες

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**ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ  
ΠΟΛΥΤΕΧΝΕΙΟ**

8<sup>ο</sup> Εξάμηνο  
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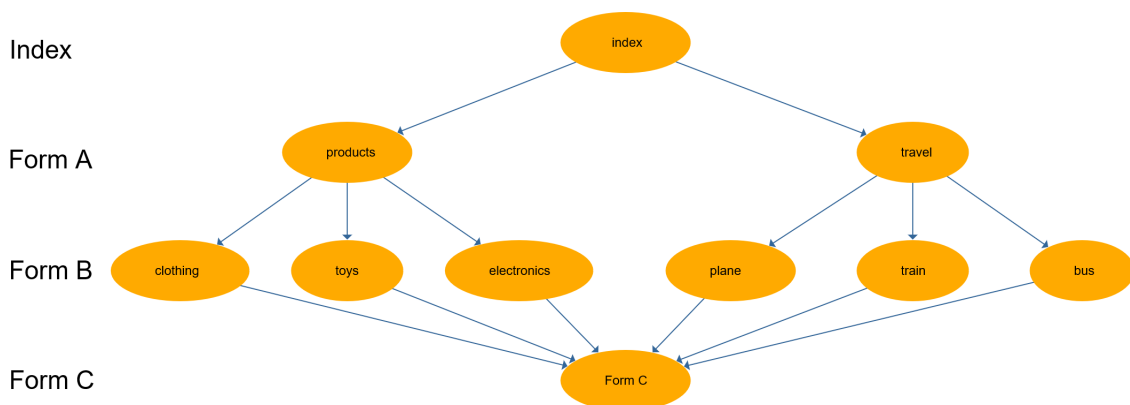
## Δυναμικές Σελίδες

### Περιγραφή Άσκησης

Σε αυτή την εργαστηριακή άσκηση σκοπός ήταν η δημιουργία μιας εφαρμογής web σχετική με την αγορά ενός προϊόντος ή υπηρεσίας η οποία αποτελείται από την ακόλουθη διαδοχική εμφάνιση φορμών στον χρήστη-πελάτη:

- **Εισαγωγική φόρμα:** Ζητείται όνομα πελάτη και γίνεται επιλογή προϊόντος ή υπηρεσίας,
- **Φόρμα Α:** Γίνεται επιλογή ομάδας προϊόντος ή υπηρεσίας (προϊόντα: ρούχα, παιχνίδια, ηλεκτρονικά, ταξίδια: αεροπλάνο, τρέινο, λεωφορείο),
- **Φόρμα Β:** Ζητείται **συγκεκριμένο** (προϊόν ή υπηρεσία)
- **Φόρμα Γ:** Γίνεται επιβεβαίωση της αγοράς/κράτησης με αναφορά στο όνομα του πελάτη (με χρήση cookies)

Κατασκευάστηκε το παρακάτω δέντρο φορμών:



Κάθε επίπεδο του δέντρου αντιστοιχεί σε μία από τις 4 φόρμες της εφαρμογής. Παρακάτω παρατίθενται οι κώδικες HTML, JAVA (Servlets) των φορμών:

```

1 <!DOCTYPE html>
2 <html>
3 <font face="Ubuntu" color="black">
4 <head>
5 <link rel='stylesheet' type='text/css' href='style.css'>
6 </head>
7 <body>
8 <center>
9 <h1>Main Menu</h1>
10 <h3>Please write your full name below and choose product or service:</h3>
11 <form id="form" method="post" action="form_A">
12 <h4>Full Name:</h4>
13 <input type="text" name="username" value="" placeholder="Enter your name here...">
14 <h4>Select one:</h4>

```

```

15 <input type="radio" name="product_service" value="products" id="rb1" checked/><
    label for="rb1">Products</label> <br>
16 <input type="radio" name="product_service" value="travel" id="rb2"/> <label for=
    "rb2">Travel</label>
17 <br><br>
18 <input type="submit" value="Submit">
19 </form>
20 </center>
21 </body>
22 </font>
23 </html>

```

Listing 1: index.html

```

1 {import javax.servlet.*;
2 import javax.servlet.http.*;
3 import java.io.*;
4
5 public class form_A extends HttpServlet {
6     public void doPost( HttpServletRequest request,           // reaction to
7         the reception of POST                                HttpServletResponse response ) throws ServletException,
8         IOException
9     {
10         PrintWriter output;
11         String username = request.getParameter("username");
12         String prod_serv = request.getParameter("product_service");
13         Cookie c = new Cookie( "username" , username );    // to be stored there as
14         a cookie
15         c.setMaxAge( 1000 ); // seconds until cookie removed
16         response.addCookie( c ); // must precede getWriter
17         response.setContentType( "text/html" );
18         output = response.getWriter();
19
20         // send HTML page to client
21         output.println( "<!DOCTYPE html><html>"
22             + "<link rel='stylesheet' type='text/css' href='style.css'>"
23             + "<body>"
24             + "<center>" );
25         if (prod_serv.equals("products")){
26             output.println("<h1>Products</h1>"
27                 + "<h3>Please choose type of product:</h3>"
28                 + "<form action='form_B' method='POST'>"
29                 + "<div class='styled-select black semi-square'>"
30                 + "<select name='form_A'>"
31                 + "    <option value='clothing'>Clothing</option>"
32                 + "    <option value='toys'>Toys</option>"
33                 + "    <option value='electronics'>Electronics</option>"
34             );
35         }
36         else if (prod_serv.equals("travel")){
37             output.println("<h1>Travel</h1>"
38                 + "<h3>Please choose type of transport</h3>"
39                 + "<form action='form_B' method='POST'>"
40                 + "    <div class='styled-select black semi-square'>"
41                 + "<select name='form_A'>"
42                 + "    <option value='plane'>Plane</option>"
43                 + "    <option value='train'>Train</option>"
44                 + "    <option value='bus'>Bus</option>"
45             );
46         }
47     }
48 }

```

```

43     output.println("</select>"
44                   + "</div>"
45                   + "    <input type='submit' value='Submit'>"
46                   + "</form>"
47                   + "</center>"
48                   + "</body>"
49                   + "</html>");
50     output.close ();    // close stream
51 }
52 }}

```

Listing 2: form\_A.java

```

1  import javax.servlet.*;
2  import javax.servlet.http.*;
3  import java.io.*;
4
5  public class form_B extends HttpServlet {
6      public void doPost( HttpServletRequest request,           // reaction to
7                          HttpServletResponse response ) throws ServletException,
8                          IOException
9      {
10         PrintWriter output;
11         String form_A = request.getParameter("form_A");
12         response.setContentType( "text/html" );
13         output = response.getWriter();
14         // send HTML page to client
15         output.println( "<!DOCTYPE html><html>"
16                       + "<link rel='stylesheet' type='text/css' href='style.css'>"
17                       + "<body>"
18                       + "<center>" );
19         if (form_A.equals("clothing")){
20             output.println("<h1>Clothing</h1>"
21                           + "<h3>Please choose type of clothing:</h3>"
22                           + "<form action='form_C' method='POST'>"
23                           + "<div class='styled-select black semi-square'>"
24                           + "<select name='form_B'>"
25                           + "    <option value='a T-shirt'>T-shirts</option>"
26                           + "    <option value='a pair of Trousers'>Trousers</"
27                           + "    <option value='a pair of Shoes'>Shoes</option>"
28                           + "    <option value='a Jacket'>Jackets</option>"
29                           + "    <option value='a Skirt'>Skirts</option>"
30                           + "    <option value='a Dress'>Dress</option>"
31                           + "    <option value='a Coat'>Coats</option>"
32                           + "    <option value='a Belt'>Belts</option>");
33         }
34         else if (form_A.equals("toys")){
35             output.println("<h1>Toys</h1>"
36                           + "<h3>Please choose type of toy:</h3>"
37                           + "<form action='form_C' method='POST'>"
38                           + "    <div class='styled-select black semi-square'>"
39                           + "    <select name='form_B'>"
40                           + "    <option value='an Action Figure'>Action Figure</"
41                           + "    <option value='a Doll'>Doll</option>"
42                           + "    <option value='a Puzzle'>Puzzle</option>"
43                           + "    <option value='Building Blocks'>Building Blocks
44                           </option>"

```

```

43         +" <option value='a Bike'>Bike</option>"
44         +" <option value='a Table Game'>Table Game</option>"
45     );
46     }
47     else if (form_A.equals("electronics")){
48         output.println("<h1>Electronics</h1>"
49             +"<h3>Please choose type of electric appliance:</h3>"
50             +"<form action='form_C' method='POST'>"
51             +" <div class='styled-select black semi-square'>"
52             +"<select name='form_B'>"
53             +" <option value='an Air Conditioner'>Air
54             Conditioner</option>"
55             +" <option value='a Blender'>Blender</option>"
56             +" <option value='a Vacuum Cleaner'>Vacuum Cleaner
57             </option>"
58             +" <option value='a Clothes Dryer'>Clothes Dryer</
59             option>"
60             +" <option value='a Dishwasher'>Dishwasher</option>"
61             +" <option value='a Hair Dryer'>Hair Dryer</option>"
62             +" <option value='a Microwave Oven'>Microwave Oven
63             </option>"
64             +" <option value='a Television'>Television</option>"
65             +" <option value='a Toaster'>Toaster</option>");
66     }
67     else if (form_A.equals("plane")){
68         output.println("<h1>Plane</h1>"
69             +"<h3>Please choose a destination:</h3>"
70             +"<form action='form_C' method='POST'>"
71             +" <div class='styled-select black semi-square'>"
72             +"<select name='form_B' >"
73             +" <option value='a flight to Athens'>Athens</
74             option>"
75             +" <option value='a flight to Atlanta'>Atlanta</
76             option>"
77             +" <option value='a flight to Baltimore'>Baltimore
78             </option>"
79             +" <option value='a flight to Barcelona'>Barcelona
80             </option>"
81             +" <option value='a flight to Beijing'>Beijing</
82             option>"
83             +" <option value='a flight to Budapest'>Budapest</
84             option>"
85             +" <option value='a flight to Buenos Aires'>Buenos
86             Aires</option>"
87             +" <option value='a flight to Chicago'>Chicago</
88             option>"
89             +" <option value='a flight to Delhi'>Delhi</option>"
90             +" <option value='a flight to Dublin'>Dublin</
91             option>"
92             +" <option value='a flight to Frankfurt'>Frankfurt
93             </option>"
94             +" <option value='a flight to Helsinki'>Helsinki</
95             option>"
96             +" <option value='a flight to Lisbon'>Lisbon</
97             option>"

```

```

81         + "    <option value='a flight to London'>London</
option>"
82         + "    <option value='a flight to Madrid'>Madrid</
option>"
83         + "    <option value='a flight to Paris'>Paris</option>
");
84     }
85     else if (form_A.equals("train")){
86         output.println("<h1>Train</h1>"
87             + "<h3>Please choose a train route:</h3>"
88             + "<form action='form_C' method='POST'>"
89             + "    <div class='styled-select black semi-square'>"
90             + "<select name='form_B'>"
91             + "        <option value='a train trip from Paris to
Amsterdam'>Paris to Amsterdam</option>"
92             + "        <option value='a train trip from Paris to
Barcelona'>Paris to Barcelona</option>"
93             + "        <option value='a train trip from Madrid to
Barcelona'>Madrid to Barcelona</option>"
94             + "        <option value='a train trip from Paris to Geneva
'>Paris to Geneva</option>"
95             + "        <option value='a train trip from Amsterdam to
Berlin'>Amsterdam to Berlin</option>"
96             + "        <option value='a train trip from Berlin to
Prague'>Berlin to Prague</option>"
97             + "        <option value='a train trip from Prague to
Vienna'>Prague to Vienna</option>"
98             + "        <option value='a train trip from Vienna to
Budapest'>Vienna to Budapest</option>");
99     }
100    else if (form_A.equals("bus")){
101        output.println("<h1>Bus</h1>"
102            + "<h3>Please choose a destination:</h3>"
103            + "<form action='form_C' method='POST'>"
104            + "    <div class='styled-select black semi-square'>"
105            + "<select name='form_B' >"
106            + "        <option value='a bus trip to Thessaloniki'>
Thessaloniki</option>"
107            + "        <option value='a bus trip to Patras'>Patras</
option>"
108            + "        <option value='a bus trip to Larisa'>Larisa</
option>"
109            + "        <option value='a bus trip to Ioannina'>Ioannina
</option>"
110            + "        <option value='a bus trip to Corinth'>Corinth</
option>"
111            + "        <option value='a bus trip to Nafplio'>Nafplio</
option>"
112            + "        <option value='a bus trip to Chalcis'>Chalcis</
option>"
113            + "        <option value='a bus trip to Xanthi'>Xanthi</
option>");
114    }
115    output.println("</select>"
116        + "</div>"
117        + "    <input type='submit' value='Submit'>"
118        + "</form> "
119        + "</center>"
120        + "</body>"
121        + "</html>");

```

```

122     output.close ();    // close stream
123 }
124 }

```

Listing 3: form\_B.java

```

1 import javax.servlet.*;
2 import javax.servlet.http.*;
3 import java.io.*;
4
5 public class form_C extends HttpServlet {
6     public void doPost( HttpServletRequest request,           // reaction to
7         the reception of POST                                HttpServletResponse response ) throws ServletException,
8         IOException
9     {
10         PrintWriter output;
11         String form_B = request.getParameter("form_B");
12         Cookie cookies[];
13         String user= "";
14         cookies = request.getCookies(); // get client's cookies
15         response.setContentType( "text/html" );
16         output = response.getWriter();
17         int found = 0;
18         if ( cookies.length != 0 ) {
19             for ( int i = 0; i < cookies.length; i++ ){
20                 if (cookies[i].getName().equals("username")){
21                     user = cookies[i].getValue();
22                     if (user.equals("")){
23                         user = "anonymous user";
24                     }
25                     found = 1;
26                     break;
27                 }
28             }
29             if (found == 0){
30                 user = "anonymous user";
31             }
32         }
33         else {
34             user = "anonymous user";
35         }
36         // send HTML page to client
37         output.println( "<!DOCTYPE html><html>"
38             + "<link rel='stylesheet' type='text/css' href='style.css'>"
39             + "<body>"
40             + "<center>"
41             + "<font face='Ubuntu' color='black'>");
42         output.println("<h1>Transaction Complete!</h1>"
43             + "<h3>Dear "+user+",</h3>"
44             + "You have selected "+form_B+"<br>"
45             + "Thank you for your purchase!<br><br>");
46         String curr_Path = this.getClass().getClassLoader().getResource("").getPath
47             ();
48         File f = new File(curr_Path.substring(0,curr_Path.length() - 16)+"images/"+
49             form_B+".png");
50         if(f.exists()) {
51             output.println("<img src='images/"+form_B+".png' width=200 height=200>"
52                 );
53         }
54     }
55 }

```

```

50     output.println("<br><br>"
51                   + "<a href='index.html'><rbutton class='rbutton' style='
vertical-align:middle'><span>Go Back</span></rbutton></a>"
52                   + "</center>"
53                   + "</font>"
54                   + "</body>"
55                   + "</html>");
56     output.close ();    // close stream
57 }
58 }

```

Listing 4: form\_C.java

```

1 <?xml version="1.0" encoding="ISO-8859-1"?>
2 <!--
3     Copyright 1999-2004 The Apache Software Foundation
4 -->
5
6 <!DOCTYPE web-app
7     PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.2//EN"
8     "http://java.sun.com/j2ee/dtds/web-app_2_2.dtd">
9
10 <!-- web-app element was originally found empty - the following are additions
11      for the demonstration of HTTPGetServlet -->
12 <web-app>
13     <servlet> <!-- the following name will refer to the sepecified class -->
14         <servlet-name>form_A</servlet-name>
15         <servlet-class>form_A</servlet-class>
16     </servlet>
17     <servlet> <!-- the following name will refer to the sepecified class -->
18         <servlet-name>form_B</servlet-name>
19         <servlet-class>form_B</servlet-class>
20     </servlet>
21     <servlet> <!-- the following name will refer to the sepecified class -->
22         <servlet-name>form_C</servlet-name>
23         <servlet-class>form_C</servlet-class>
24     </servlet>
25     <servlet-mapping><!-- the following (same) name will called as the specified
26         url pattern
27         so hitting http://localhost:8080/myAskisisDir/
28         form_A/* (any thing)
29         will lead to form_A -->
30         <servlet-name>form_A</servlet-name>
31         <url-pattern>/form_A/*</url-pattern>
32     </servlet-mapping>
33     <servlet-mapping><!-- the following (same) name will called as the specified
34         url pattern
35         so hitting http://localhost:8080/myAskisisDir/
36         form_B/* (any thing)
37         will lead to form_B -->
38         <servlet-name>form_B</servlet-name>
39         <url-pattern>/form_B/*</url-pattern>
40     </servlet-mapping>
41     <servlet-mapping><!-- the following (same) name will called as the specified
42         url pattern
43         so hitting http://localhost:8080/myAskisisDir/
44         form_C/* (any thing)
45         will lead to form_C -->
46         <servlet-name>form_C</servlet-name>
47         <url-pattern>/form_C/*</url-pattern>

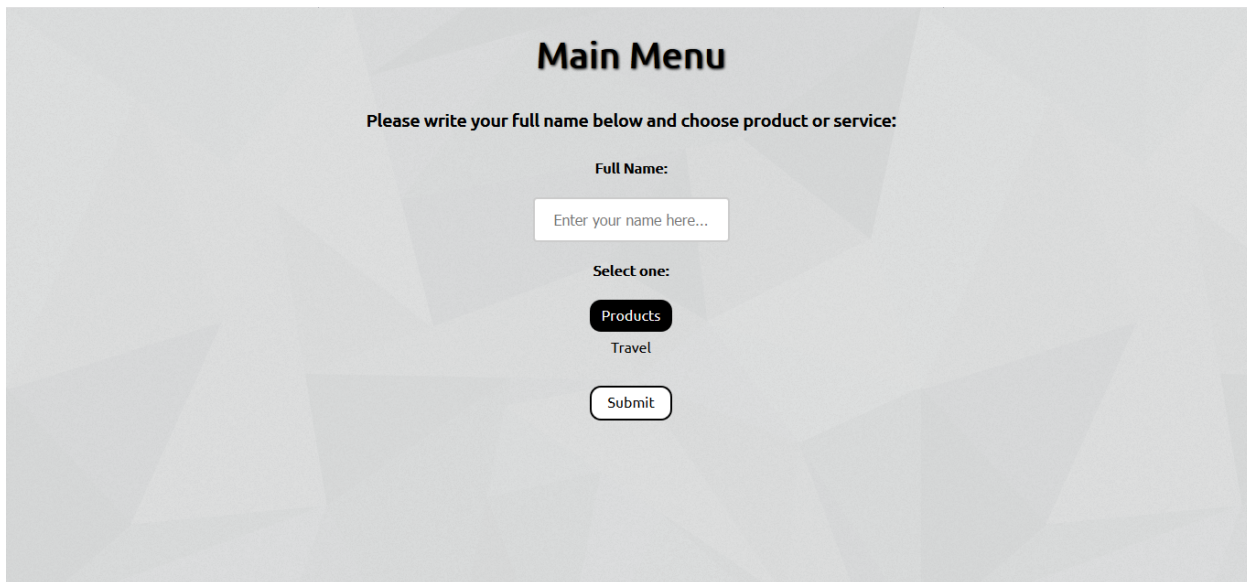
```



```
42     </servlet-mapping>
43 </web-app>
```

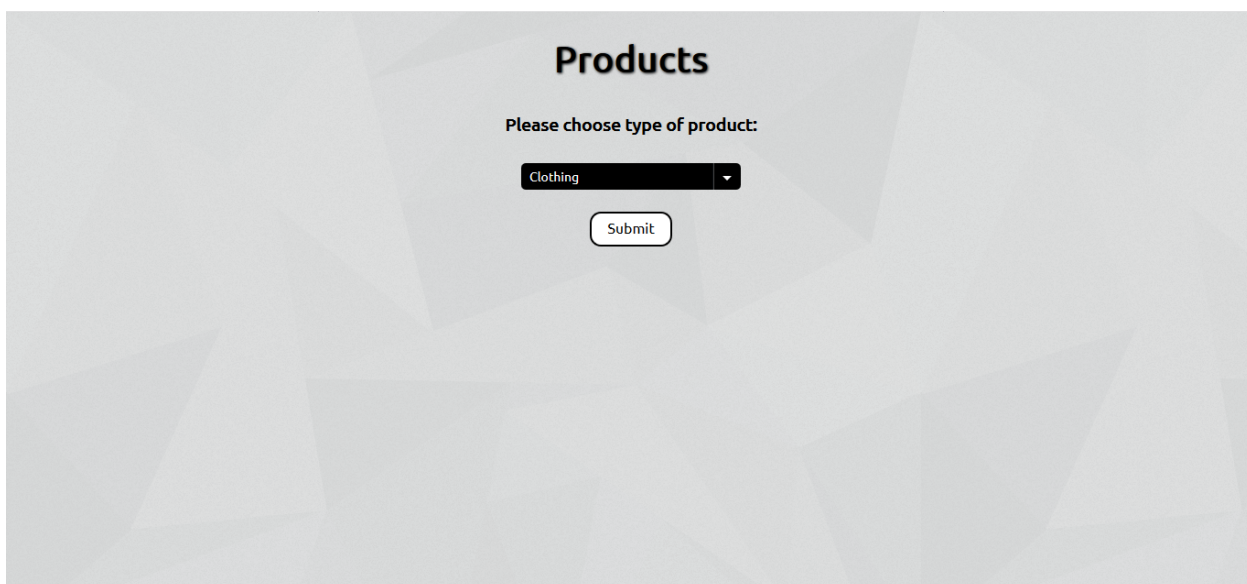
**Listing 5:** web.xml

Ο χρήστης αρκεί να πληκτρολογήσει στον browser του τη διεύθυνση `localhost:8080/myAskisisDir` ώστε να παρευρεθεί στην βασική (στατική) ιστοσελίδα της εφαρμογής. Έπειτα καλείται να συμπληρώσει τις σελίδες-φόρμες οι οποίες εμφανίζονται δυναμικά στον browser του χάρη στα αντίστοιχα JAVA Servlets με ονόματα `form_A.class`, `form_B.class`, `form_C.class`, ανάλογα με τις επιλογές του κάθε φορά. Τα screenshots όλων των πιθανών φορμών που μπορούν να εμφανιστούν στον χρήστη παρατίθενται παρακάτω:



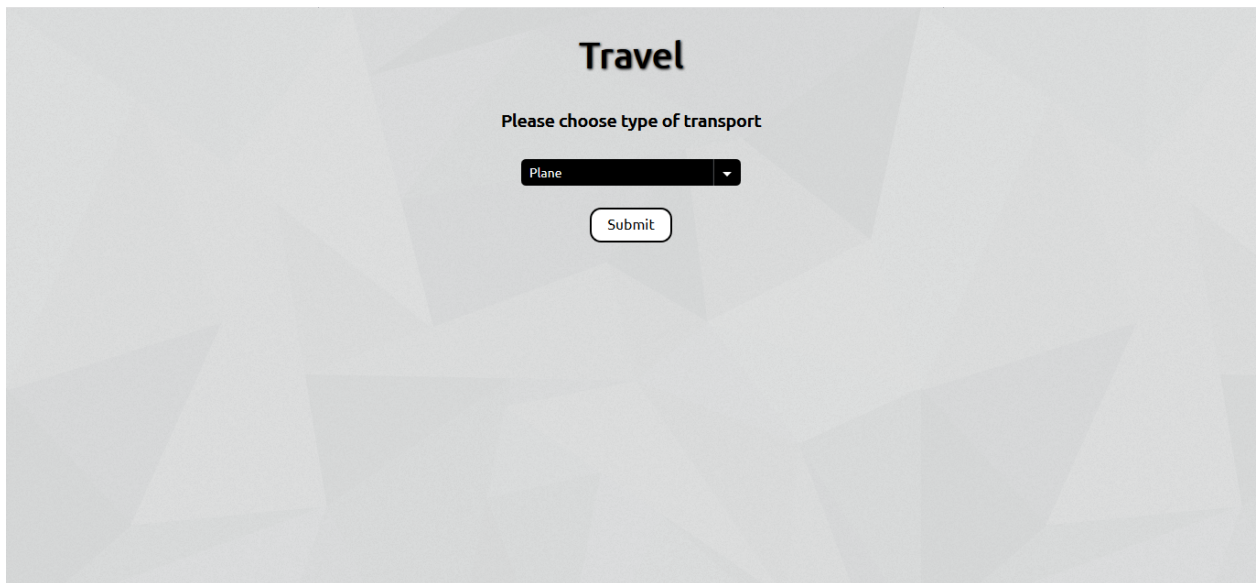
The screenshot shows a web form titled "Main Menu". Below the title, it says "Please write your full name below and choose product or service:". There is a text input field labeled "Full Name:" with the placeholder text "Enter your name here...". Below this is a "Select one:" label followed by two radio buttons: "Products" (which is selected) and "Travel". At the bottom of the form is a "Submit" button.

**Σχήμα 1:** Εισαγωγική φόρμα - Index



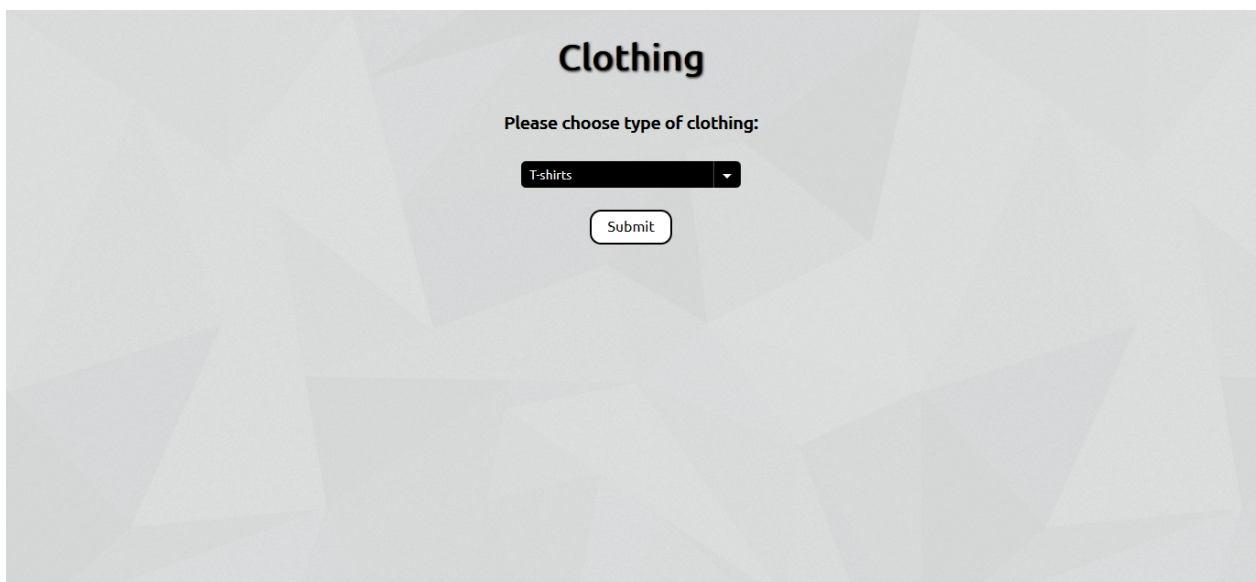
The screenshot shows a web form titled "Products". Below the title, it says "Please choose type of product:". There is a dropdown menu with "Clothing" selected. At the bottom of the form is a "Submit" button.

**Σχήμα 2:** Φόρμα A - Products



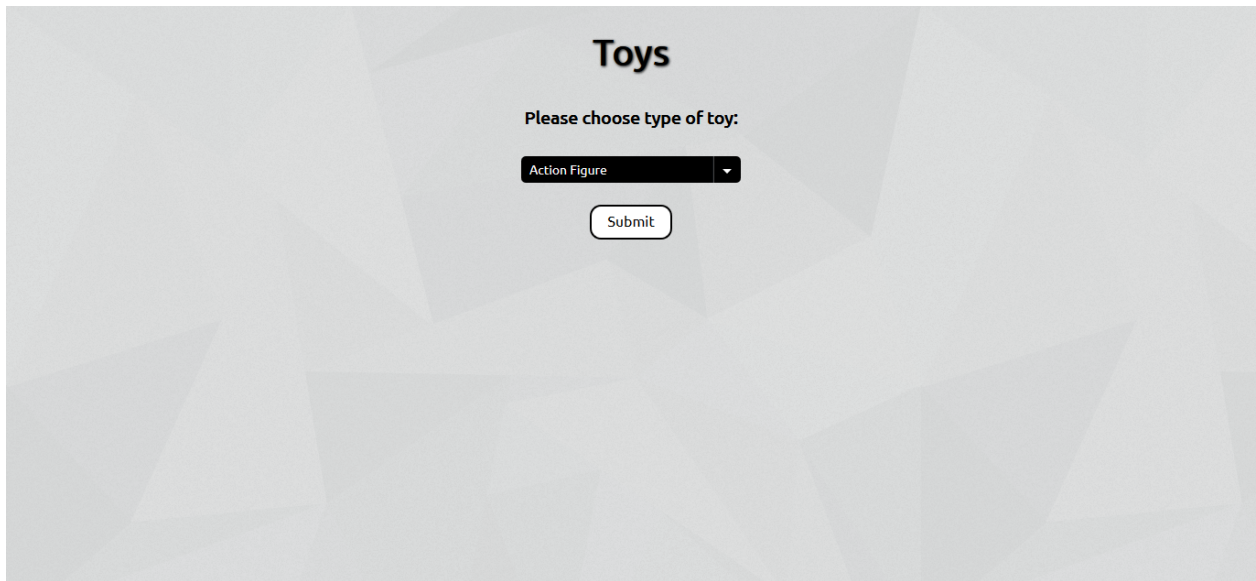
The screenshot shows a web form titled "Travel" centered on a light gray background with a subtle geometric pattern. Below the title is the instruction "Please choose type of transport". There is a dark gray dropdown menu with the word "Plane" selected. Below the dropdown is a white "Submit" button with a thin black border.

Σχήμα 3: Φόρμα A - Travel



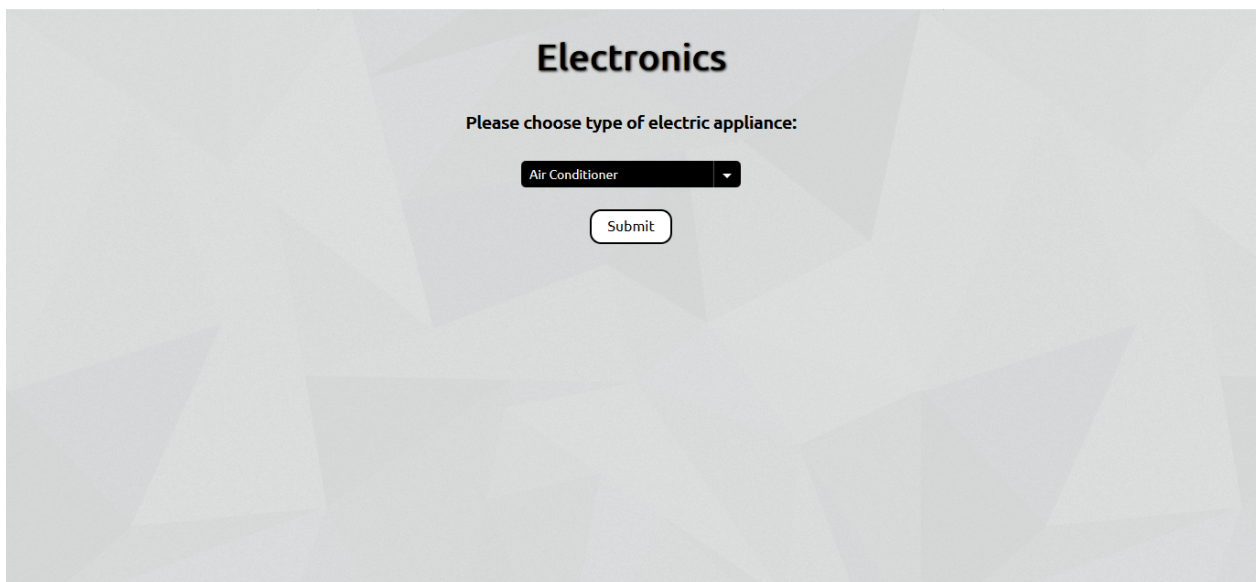
The screenshot shows a web form titled "Clothing" centered on a light gray background with a subtle geometric pattern. Below the title is the instruction "Please choose type of clothing:". There is a dark gray dropdown menu with the word "T-shirts" selected. Below the dropdown is a white "Submit" button with a thin black border.

Σχήμα 4: Φόρμα B - Clothing



The screenshot shows a web form titled "Toys" centered on a light gray background with a subtle geometric pattern. Below the title, the text "Please choose type of toy:" is displayed. Underneath this text is a dark gray dropdown menu with the text "Action Figure" and a small downward arrow on the right. Below the dropdown menu is a white "Submit" button with a thin black border.

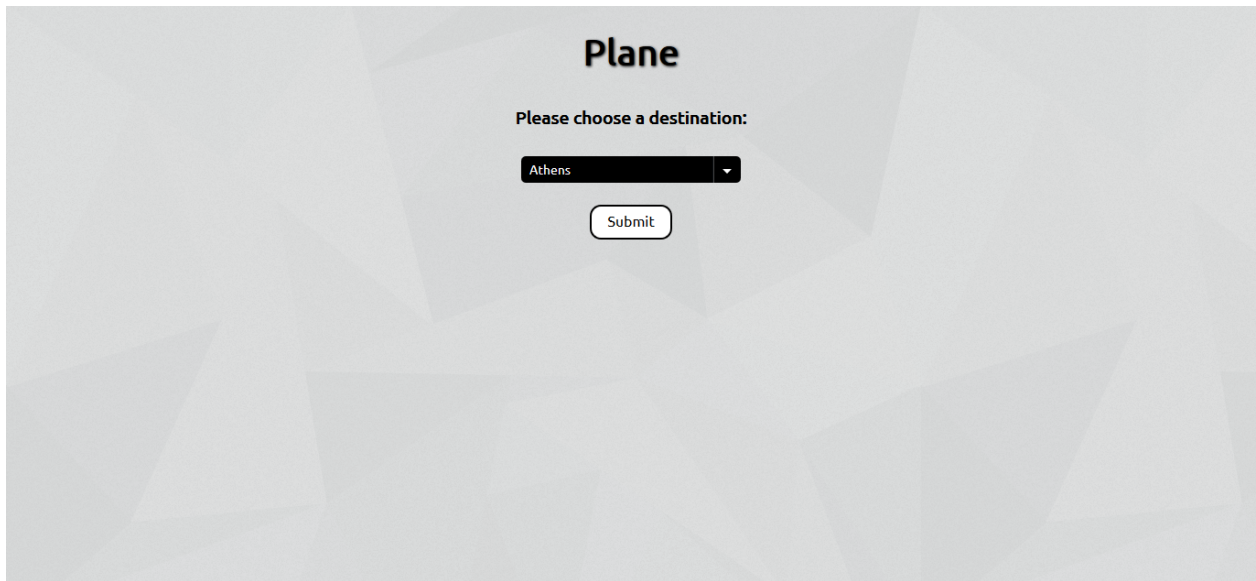
Σχήμα 5: Φόρμα B - Toys



The screenshot shows a web form titled "Electronics" centered on a light gray background with a subtle geometric pattern. Below the title, the text "Please choose type of electric appliance:" is displayed. Underneath this text is a dark gray dropdown menu with the text "Air Conditioner" and a small downward arrow on the right. Below the dropdown menu is a white "Submit" button with a thin black border.

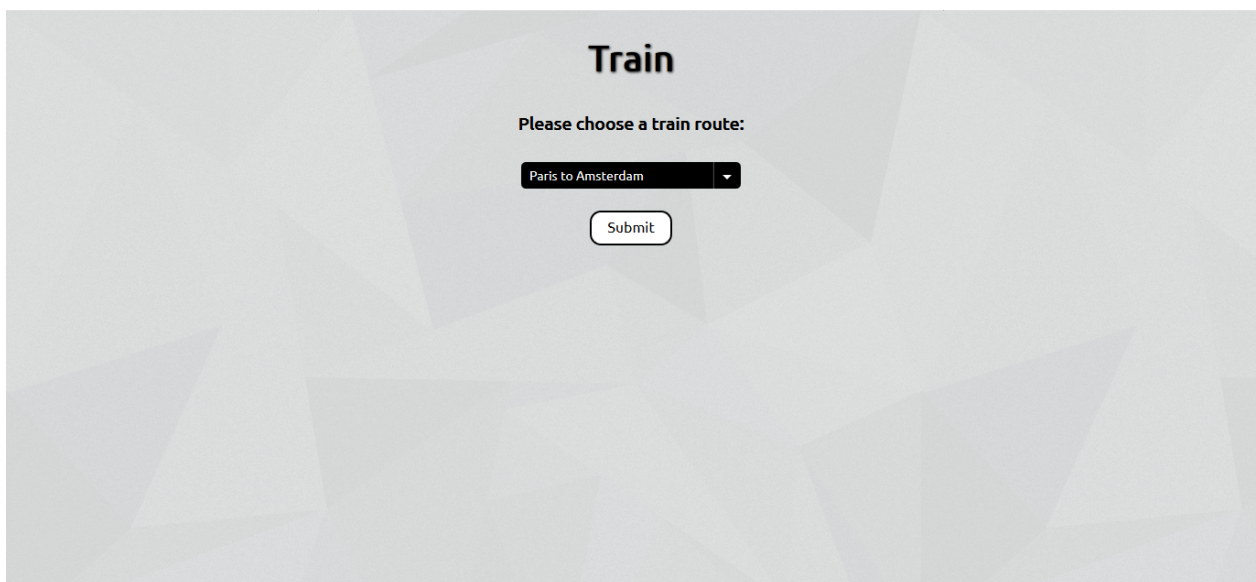
Σχήμα 6: Φόρμα B - Electronics





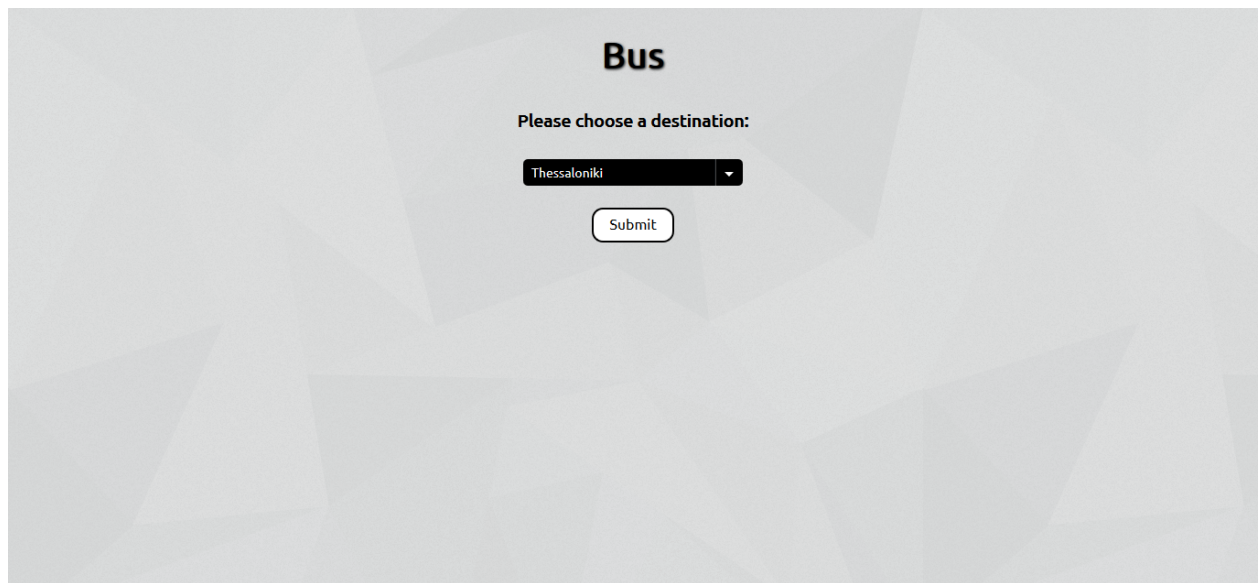
The screenshot shows a web form titled "Plane" centered on a light gray background with a subtle geometric pattern. Below the title, the text "Please choose a destination:" is displayed. Underneath this text is a dark gray dropdown menu with the word "Athens" visible on the left and a small downward arrow on the right. Below the dropdown menu is a white "Submit" button with a thin black border.

Σχήμα 7: Φόρμα Β - Plane



The screenshot shows a web form titled "Train" centered on a light gray background with a subtle geometric pattern. Below the title, the text "Please choose a train route:" is displayed. Underneath this text is a dark gray dropdown menu with the text "Paris to Amsterdam" visible on the left and a small downward arrow on the right. Below the dropdown menu is a white "Submit" button with a thin black border.

Σχήμα 8: Φόρμα Β - Train



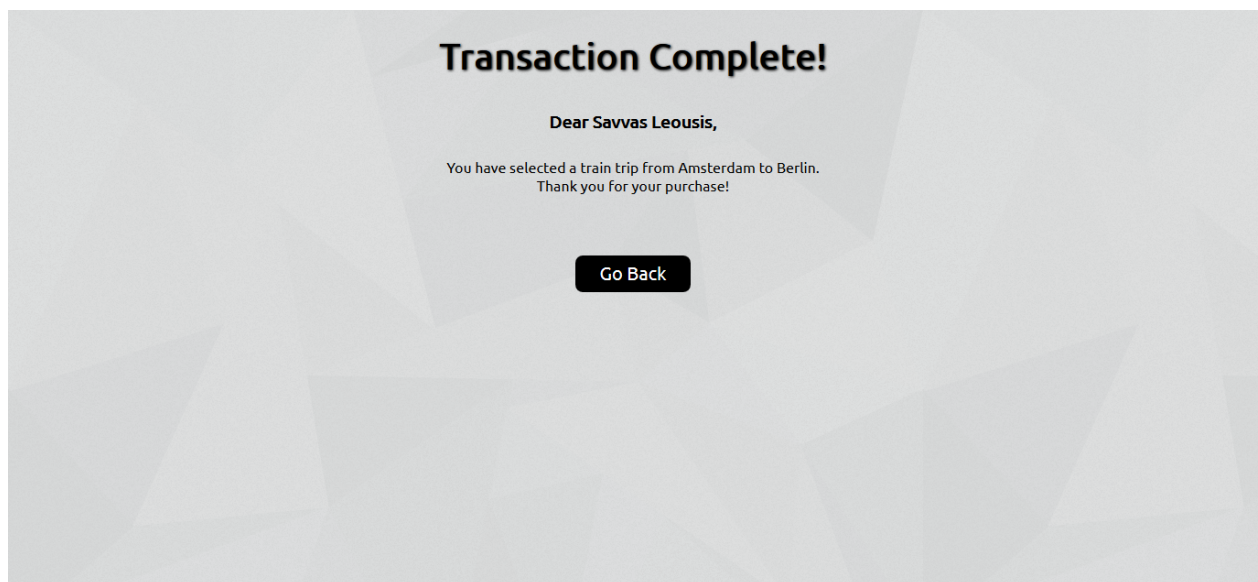
**Bus**

Please choose a destination:

Thessaloniki ▼

Submit

Σχήμα 9: Φόρμα Β - Bus



**Transaction Complete!**

Dear Savvas Leousis,

You have selected a train trip from Amsterdam to Berlin.  
Thank you for your purchase!

Go Back

Σχήμα 10: Φόρμα Γ - Transaction Complete