

CSCI 1720

Bootstrap – Part 2

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

1

Bootstrap Images

Rounded Corners

The `img-rounded` class adds rounded corners to an image (not available in IE8).



```

```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

2

Bootstrap Images

Circle

The `img-circle` class shapes the image to a circle.



```

```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

3

Bootstrap Images



```

```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

4

Bootstrap Images – Responsive Images

Images come in all sizes. So do screens. Responsive images automatically adjust to fit the size of the screen

Create responsive images by adding the `.img-fluid` class to the `` tag. The image will then scale nicely to the parent element

The `.img-fluid` class applies `display: block;` and `max-width: 100%;` and `height: auto;` to the image

```

```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

5

Bootstrap Jumbotron

6

Bootstrap Jumbotron

A **jumbotron** is a big box for calling extra attention to some special content or information

A jumbotron is displayed as a grey box with rounded corners. It also enlarges the font sizes of the text inside it

Tip: Inside a jumbotron you can put nearly any valid HTML, including other Bootstrap elements/classes

Use a `<div>` element with class `.jumbotron` to create a jumbotron

Place the jumbotron inside the `<div class="container">` if you want the jumbotron to **NOT** extend to the edge of the screen



7

Bootstrap Jumbotron

```
<div class="container">
  <div class="jumbotron">
    <h1>Bootstrap Tutorial</h1>
    <p>
      Bootstrap is the most popular HTML, CSS, and JS framework for developing
      responsive, mobile-first projects on the web.
    </p>
  </div>
  <p>This is some text.</p>
  <p>This is another text.</p>
</div>
```



8

Bootstrap Jumbotron

Bootstrap Tutorial

Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile-first projects on the web.

This is some text.

This is another text.



9

Bootstrap Jumbotron

Place the jumbotron outside the `<div class="container">` if you want the jumbotron to extend to the screen edges

```
<div class="jumbotron">
  <h1>Bootstrap Tutorial</h1>
  <p>
    Bootstrap is the most popular HTML, CSS,
    and JS framework for developing responsive,
    mobile-first projects on the web.
  </p>
</div>

<div class="container">
  <p>This is some text.</p>
  <p>This is another text.</p>
</div>
```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

10

Bootstrap Jumbotron

Bootstrap Tutorial

Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile-first projects on the web.

This is some text.
This is another text.

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

11

Other Bootstrap Stuff

12

Other Bootstrap Stuff

The **.well** class adds a rounded border around an element with a gray background color and some padding

```
<div class="well">Basic Well</div>
```

Basic Well



13

Other Bootstrap Stuff

Bootstrap provides an easy way to create predefined alert messages

Success! This alert box indicates a successful or positive action. ×

Info! This alert box indicates a neutral informative change or action. ×

Warning! This alert box indicates a warning that might need attention. ×

Danger! This alert box indicates a dangerous or potentially negative action. ×



14

Other Bootstrap Stuff

```
<div class="alert alert-success">
  <strong>Success!</strong> Indicates a successful or positive action.
</div>

<div class="alert alert-info">
  <strong>Info!</strong> Indicates a neutral informative change or action.
</div>

<div class="alert alert-warning">
  <strong>Warning!</strong> Indicates a warning that might need attention.
</div>

<div class="alert alert-danger">
  <strong>Danger!</strong> Indicates a dangerous or potentially negative action.
</div>
```

15

Other Bootstrap Stuff

Bootstrap provides different styles of buttons



```
<button type="button" class="btn">Basic</button>
<button type="button" class="btn btn-default">Default</button>
<button type="button" class="btn btn-primary">Primary</button>
<button type="button" class="btn btn-success">Success</button>
<button type="button" class="btn btn-info">Info</button>
<button type="button" class="btn btn-warning">Warning</button>
<button type="button" class="btn btn-danger">Danger</button>
<button type="button" class="btn btn-link">Link</button>
```

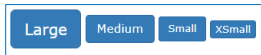
East Tennessee
Department of Computing

CSCI 1720
Intermediate Web Design

16

Other Bootstrap Stuff

Bootstrap provides four button sizes



```
<button type="button" class="btn btn-primary btn-lg">Large</button>
<button type="button" class="btn btn-primary btn-md">Medium</button>
<button type="button" class="btn btn-primary btn-sm">Small</button>
<button type="button" class="btn btn-primary btn-xs">XSmall</button>
```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

17

Other Bootstrap Stuff

A button can be set to an active (appear pressed) or a disabled (unclickable) state:



The class **.active** makes a button appear pressed, and the class **.disabled** makes a button unclickable

```
<button type="button" class="btn btn-primary active">Active Primary</button>
<button type="button" class="btn btn-primary disabled">Disabled Primary</button>
```

East Tennessee State University
Department of Computing

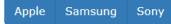


CSCI 1720
Intermediate Web Design

18

Other Bootstrap Stuff

Bootstrap allows you to group a series of buttons together (on a single line) in a **button group**:



Use a `<div>` element with class `.btn-group` to create a button group

```
<div class="btn-group">
  <button type="button" class="btn btn-primary">Apple</button>
  <button type="button" class="btn btn-primary">Samsung</button>
  <button type="button" class="btn btn-primary">Sony</button>
</div>
```



19

Other Bootstrap Stuff

Instead of applying button sizes to every button in a group, use class `.btn-group-lg` | `sm` | `xs` to size all buttons in the group

```
<div class="btn-group btn-group-lg">
  <button type="button" class="btn btn-primary">Apple</button>
  <button type="button" class="btn btn-primary">Samsung</button>
  <button type="button" class="btn btn-primary">Sony</button>
</div>
```



20

Other Bootstrap Stuff

Bootstrap also supports vertical button groups

Use the class `.btn-group-vertical` to create a vertical button group

```
<div class="btn-group-vertical">
  <button type="button" class="btn btn-primary">Apple</button>
  <button type="button" class="btn btn-primary">Samsung</button>
  <button type="button" class="btn btn-primary">Sony</button>
</div>
```

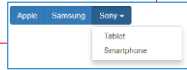


21

Other Bootstrap Stuff

Nest button groups to create **dropdown menus**

```
<div class="btn-group">
  <button type="button" class="btn btn-primary">Apple</button>
  <button type="button" class="btn btn-primary">Samsung</button>
  <div class="btn-group">
    <button type="button" class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
      Sony <span class="caret"></span></button>
    <ul class="dropdown-menu" role="menu">
      <li><a href="#">Tablet</a></li>
      <li><a href="#">Smartphone</a></li>
    </ul>
  </div>
</div>
```



East Tennessee State University
Department of Computing



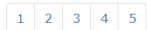
CSCI 1720
Intermediate Web Design

22

Other Bootstrap Stuff

If you have a web site with lots of pages, you may wish to add some sort of **pagination** to each page

A basic pagination in Bootstrap looks like this



```
<ul class="pagination">
  <li><a href="#">1</a></li>
  <li><a href="#">2</a></li>
  <li><a href="#">3</a></li>
  <li><a href="#">4</a></li>
  <li><a href="#">5</a></li>
</ul>
```

East Tennessee State University
Department of Computing

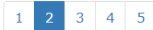


CSCI 1720
Intermediate Web Design

23

Other Bootstrap Stuff

The **active** state shows what is the current page:



Add class **.active** to let the user know which page he/she is on

```
<ul class="pagination">
  <li><a href="#">1</a></li>
  <li class="active"><a href="#">2</a></li>
  <li><a href="#">3</a></li>
  <li><a href="#">4</a></li>
  <li><a href="#">5</a></li>
</ul>
```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

24

Other Bootstrap Stuff

Another form for pagination, is **breadcrumbs**:

[Home](#) / [Private](#) / [Pictures](#) / [Vacation](#)

The **.breadcrumb** class indicates the current page's location within a navigational hierarchy

```
<ul class="breadcrumb">
  <li><a href="#">Home</a></li>
  <li><a href="#">Private</a></li>
  <li><a href="#">Pictures</a></li>
  <li class="active">Vacation</li>
</ul>
```



25

Other Bootstrap Stuff

Pager is also a form of pagination

Pager provides previous and next buttons (links)

To create previous/next buttons, add the **.pager** class to an `` element

```
<ul class="pager">
  <li><a href="#">Previous</a></li>
  <li><a href="#">Next</a></li>
</ul>
```

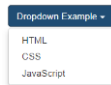


26

Other Bootstrap Stuff

A **dropdown menu** is a toggleable menu that allows the user to choose one value from a predefined list

```
<div class="dropdown">
  <button class="btn btn-primary dropdown-toggle" type="button" data-toggle="dropdown">Dropdown Example
  <span class="caret"></span></button>
  <ul class="dropdown-menu">
    <li><a href="#">HTML</a></li>
    <li><a href="#">CSS</a></li>
    <li><a href="#">JavaScript</a></li>
  </ul>
</div>
```



27

Other Bootstrap Stuff

Collapsibles are useful when you want to hide and show large amount of content

```
<button data-toggle="collapse" data-target="#demo">Collapsible</button>
```

```
<div id="demo" class="collapse">
  Click Me
  Lorem ipsum dolor text...
</div>
```



Click Me
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.



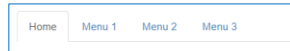
28

Other Bootstrap Stuff

Tabs are created with `<ul class="nav nav-tabs">`

Tip: Also mark the current page with `<li class="active">`

```
<ul class="nav nav-tabs">
  <li class="active"><a href="#">Home</a></li>
  <li><a href="#">Menu 1</a></li>
  <li><a href="#">Menu 2</a></li>
  <li><a href="#">Menu 3</a></li>
</ul>
```



29

Other Bootstrap Stuff

To make the tabs toggleable, add the `data-toggle="tab"` attribute to each link

Then add a `.tab-pane` class with a unique ID for every tab and wrap them inside a `<div>` element with class `.tab-content`

If you want the tabs to fade in and out when clicking on them, add the `.fade` class to `.tab-pane`

This is different from the non-toggleable tabs in that all of the tabbed content is contained within a single page

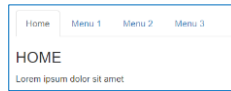


30

Other Bootstrap Stuff

```
<ul class="nav nav-tabs">
  <li class="active"><a data-toggle="tab" href="#home">Home</a></li>
  <li><a data-toggle="tab" href="#menu1">Menu 1</a></li>
  <li><a data-toggle="tab" href="#menu2">Menu 2</a></li>
  <li><a data-toggle="tab" href="#menu3">Menu 3</a></li>
</ul>

<div class="tab-content">
  <div id="home" class="tab-pane fade in active">
    <h3>HOME</h3>
    <p>Lorem ipsum dolor sit amet</p>
  </div>
  <div id="menu1" class="tab-pane fade">
    <h3>Menu 1</h3>
    <p>Ut enim ad minim veniam, quis nostrud</p>
  </div>
  <div id="menu2" class="tab-pane fade">
    <h3>Menu 2</h3>
    <p>Sed ut perspiciatis unde omnis</p>
  </div>
  <div id="menu3" class="tab-pane fade">
    <h3>Menu 3</h3>
    <p>Faque ipsa quae ab illo inventore</p>
  </div>
</div>
```



CSCI 1720
Intermediate Web Design

31

Other Bootstrap Stuff

One of the cooler things you can do with Bootstrap is **carousels**. The Carousel plugin is a component for cycling through elements, like a carousel (slideshow). The plugin is included as part of the **bootstrap.min.js** file you linked to in your template. They work best if all your images are the same aspect ratio (portrait or landscape) and the same dimensions (e.g., 640px X 480px). The code is a little more complex, so let's break it down.

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

32

Other Bootstrap Stuff

1. Create the carousel div and indicators

```
<h2>Carousel Example</h2><br><br><br>
<div id="myCarousel" class="carousel slide" data-ride="carousel">
  <!-- Indicators -->
  <ol class="carousel-indicators">
    <li data-target="#myCarousel" data-slide-to="0" class="active"></li>
    <li data-target="#myCarousel" data-slide-to="1"></li>
    <li data-target="#myCarousel" data-slide-to="2"></li>
    <li data-target="#myCarousel" data-slide-to="3"></li>
    <li data-target="#myCarousel" data-slide-to="4"></li>
  </ol>
```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

33

2. Create a div for each image

```

<!-- Wrapper for slides -->
<div class="carousel-inner">
  <div class="item active">
    
  </div>
  <div class="item">
    
  </div>
  <div class="item">
    
  </div>
  <div class="item">
    
  </div>
  <div class="item">
    
  </div>
</div>

```

Notice .JPG instead of .jpg. I usually use all lower-case in file names, but the camera saved it this way and I was feeling too lazy to rename them all

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

34

Other Bootstrap Stuff

3. Add the controls (note the glyphicons)

```

<!-- Left and right controls -->
<a class="left carousel-control" href="#myCarousel" data-slide="prev">
  <span class="glyphicon glyphicon-chevron-left"></span>
  <span class="sr-only">Previous</span>
</a>
<a class="right carousel-control" href="#myCarousel" data-slide="next">
  <span class="glyphicon glyphicon-chevron-right"></span>
  <span class="sr-only">Next</span>
</a>
</div> <!-- Closing carousel div tag -->
</div> <!-- Closing container div tag -->

```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

35

Other Bootstrap Stuff

4. Save, and check it out!

See it in action:

[bscarousel.php](#)



East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

36

Other Bootstrap Stuff

Finally, you can create a scrollspy, where you use Bootstrap in combination with internal links to enable a user to jump to different parts of a long page

Note: for this to work, the body selector must have a position: relative rule –

```
body {
  position: relative;
}
```



37

Other Bootstrap Stuff

1. Create a fluid navbar

```
<nav class="navbar navbar-inverse navbar-fixed-top">
  <div class="container-fluid">
    <div class="navbar-header">
      <button type="button" class="navbar-toggle"
        data-toggle="collapse" data-target="#myNavbar">
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
        <span class="icon-bar"></span>
      </button>
      <a class="navbar-brand" href="#">WebSiteName</a>
    </div>
  </div>
```



38

Other Bootstrap Stuff

2. Add links to each section of the page

```
<div>
  <div class="collapse navbar-collapse" id="myNavbar">
    <ul class="nav navbar-nav">
      <li><a href="#section1">Section 1</a></li>
      <li><a href="#section2">Section 2</a></li>
      <li><a href="#section3">Section 3</a></li>
      <li><a href="#section4">Section 4</a></li>
    </ul>
  </div>
</div>
```



39

Other Bootstrap Stuff

3. Identify each section (div) in the page

```
<div id="section1" class="container-fluid">
  <h1>Section 1</h1>
  <p>Try to scroll this section and look at the navigation
  bar while scrolling! Try to scroll this section and look at
  the navigation bar while scrolling!</p>
  <p>Try to scroll this section and look at the navigation
  bar while scrolling! Try to scroll this section and look at
  the navigation bar while scrolling!</p>
</div>
```

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

40

Other Bootstrap Stuff

3. Identify each section (div) in the page

```
<div id="section2" class="container-fluid">
  <h1>Section 2</h1>
  <p>Try to scroll this section and look at the navigation
  bar while scrolling! Try to scroll this section and look at
  the navigation bar while scrolling!</p>
  <p>Try to scroll this section and look at the navigation
  bar while scrolling! Try to scroll this section and look at
  the navigation bar while scrolling!</p>
</div> (and so on...)
```

East Tennessee State University
Department of Computing

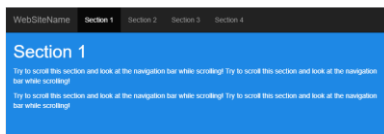


CSCI 1720
Intermediate Web Design

41

Other Bootstrap Stuff

3. Save, and preview



East Tennessee State University
Department of Computing



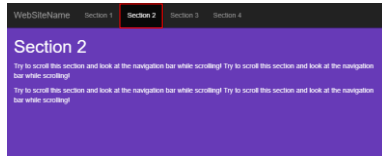
CSCI 1720
Intermediate Web Design

42

Other Bootstrap Stuff

3. Save, and preview

(Notice how the active link updates as you reach each section of the page)



43

Other Bootstrap Stuff

4. Note: we had to add a little jQuery to make the animated transitions work:



44

```
// Scrollspy scripts
// Add smooth scrolling on all links inside the navbar
$(document).ready(function() {
  // Add scrollspy to <body>
  $('body').scrollspy({target: ".navbar", offset: 50});

  // Add smooth scrolling on all links inside the navbar
  $(".navbar a").on('click', function(event) {
    // Make sure this.hash has a value before overriding default behavior
    if (this.hash != "") {
      // Prevent default anchor click behavior
      event.preventDefault();

      // Store hash
      var hash = this.hash;

      // Using jQuery's animate() method to add smooth page scroll
      // The optional number (800) specifies the number of milliseconds it takes to scroll to the
      // specified area
      $('html, body').animate({
        scrollTop: $(hash).offset().top
      }, 800, function() {
        // Add hash (#) to URL when done scrolling (default click behavior)
        window.location.hash = hash;
      });
    } // End if
  });
});
```



45

Sources

https://www.w3schools.com/bootstrap/bootstrap_get_started.asp
<http://getbootstrap.com/about/>
<https://hostingfacts.com/internet-facts-stats-2016/>
<https://developers.google.com/web/fundamentals/design-and-ui/responsive/>

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

46

Copyrights



Presentation prepared by and copyright of John Ramsey,
East Tennessee State University, Department of
Computing . (ramseyjw@etsu.edu)



- MSN, MSN Desktop, Email, Outlook, and Internet Explorer are registered trademarks of Microsoft Corporation.
- MSN, MSN Desktop Universal Desktop, Internet Explorer, System, System 5, System 6, System 7, System 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 83

East Tennessee State University
Department of Computing



CSCI 1720
Intermediate Web Design

47