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EDPS 6560

Multimedia Learning

Photo Composition and HTML Containers

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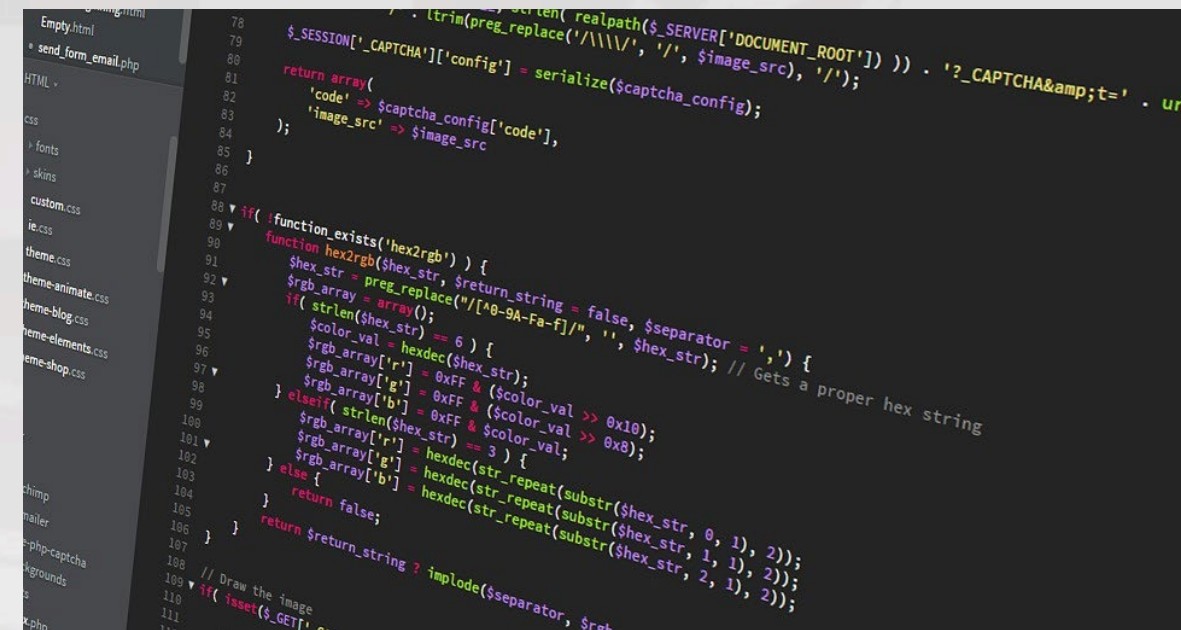
Spring 2018
January 30th



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Class Objectives

- By the end of this class you should be able to:
 - Draft an HTML table
 - Differentiating id and class attributes
 - Building a CSS grid using the BS4 framework
 - Demonstrate knowledge of layers and masks
 - Demonstrate knowledge of working with selection tools





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Class Schedule

5:00-6:30 PM

- Layout HTML Elements: From Tables to CSS Grids
- How to Build a CSS Grid
- Exercises

6:30-6:40 PM

- Break

6:40-7:30 PM

- Making Selections in Photoshop
- Looking Forward to Project #1

HTML Tables

The old way of arranging the layout of elements (pre HTML 4) according to rows and columns – no longer used to different screen sizes of devices (mobile, tablet, laptop)

- Structure of a [table](#)
 - Level 1: element to define a table (i.e., `<table>`)
 - Level 2: header area (i.e., `<thead>`), body area (i.e., `<tbody>`), footer area (i.e., `<tfoot>`)
 - Level 3: table row (i.e., `<tr>`); usually multiple rows in `<tbody>` area
 - Level 4: heading (i.e., `<th>`) or table data (i.e., `<td>`) elements; `<th>` is used in `<thead>` row
- Spanning data in a table
 - `<td colspan="2">` (i.e., across columns)
 - `<td rowspan="2">` (i.e., across rows)



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CSS Grids: An Overview

- Tables were used in the past (pre HTML 4) to layout elements on a page, but CSS is now the preferred layout method, and relies on CSS grids that make heavy use of `<div>` containers
- CSS Grid systems rely on `<div>` tags to organize the layouts of HTML elements and ensures that it is responsive to the type of device/screen size
- This is the first step in planning a site – how to create a grid. This will allow you to add content using HTML elements, and make finer level adjustments to the position of that content (e.g., center aligning an element within a column of your grid)
- Take a few moments to review the relevant documentation on [Layout in the Bootstrap 4 documentation](#). I've summarized the main details into this flowchart.



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HTML Id Attributes

Id attributes may be used as selectors to assign CSS properties to a *single HTML element*. They have priority over CSS properties assigned through class attributes and may override the styles.

```
#section1{  
    background-color: lightgray;  
}
```

/* Notice that the syntax for comments is different. Also, id attribute values are assigned the “#” symbol */

...

```
<div id="section1" class="row">
```



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HTML Class Attributes

Class attributes may be used as selector to assign CSS properties to *multiple HTML elements*

```
.sections{  
    background-color: lightsteelblue;  
}
```

/* class attribute values are assigned the “.” symbol */

...

```
<div class="row sections">
```

Id and Class Values Used in CSS Grids

BS4 CSS Grid

The “container” class reference has by default, margins assigned to the left and right of the page, while “container-fluid” takes the whole width of a page

The “row” class reference indicates a horizontal area where columns will be located, and rows are typically stacked on top of each other within a container

The “col” class reference indicates the area where your content will appear, and are stacked next to each other within each row

NOTE: Entire rows of content may also be nested within columns. Use id attribute values to refer to specific sections in the website to facilitate navigation.



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How to Build a CSS Grid Using BS4

Steps to create a CSS grid:

1. Do you want whitespace on the left and right hand sides of the [container](#) of the CSS grid?

Yes, define your level 1 <div> container as <div class="container">

No, define your level 1 <div> container as <div class="container-fluid">

Page

```
<div class="container">
```



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How to Build a CSS Grid Using BS4

Steps to create a CSS grid:

2. How many separate sections stacked on top of each other OR views to show distinct types of content that users can choose from?

Create # of rows using an id attribute to name them, as in `<div id="my_section_name" class="row">`

Page

```
<div class="container">
```

```
<div id="section_1" class="row">
```



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How to Build a CSS Grid Using BS4

Steps to create a CSS grid:

3. How many separate columns of content will appear next to each other within each row/section?

Create # of cols in each row/section as in `<div class="col">`

Page

```
<div class="container">
```

```
<div id="section_1" class="row">
```

```
<div class="col">
```

```
<div class="col">
```



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How to Build a CSS Grid Using BS4

Steps to create a CSS grid:

4. How wide do you want your columns to appear?

Assume a total of 12 separate units of width, partition to each column a value so that the sum is equal 12 units in each row/section as in `<div class="col-x">`, where x equals a value for the units of width

Page

```
<div class="container">
```

```
<div id="section_1" class="row">
```

```
<div class="col-3">
```

```
<div class="col-9">
```



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How to Build a CSS Grid Using BS4

Steps to create a CSS grid:

5. Test your grid system for multiple types of devices using the developer tools.

Add **grid breakpoints (col-, col-sm, col-md, col-lg, col-xl)** to determine whether columns get stacked vertically (on top of each other) rather than horizontally (line in the row).

Page

```
<div class="container">
```

```
<div id="section_1" class="row">
```

```
<div class="col-sm-3">
```

```
<div class="col-sm-9">
```

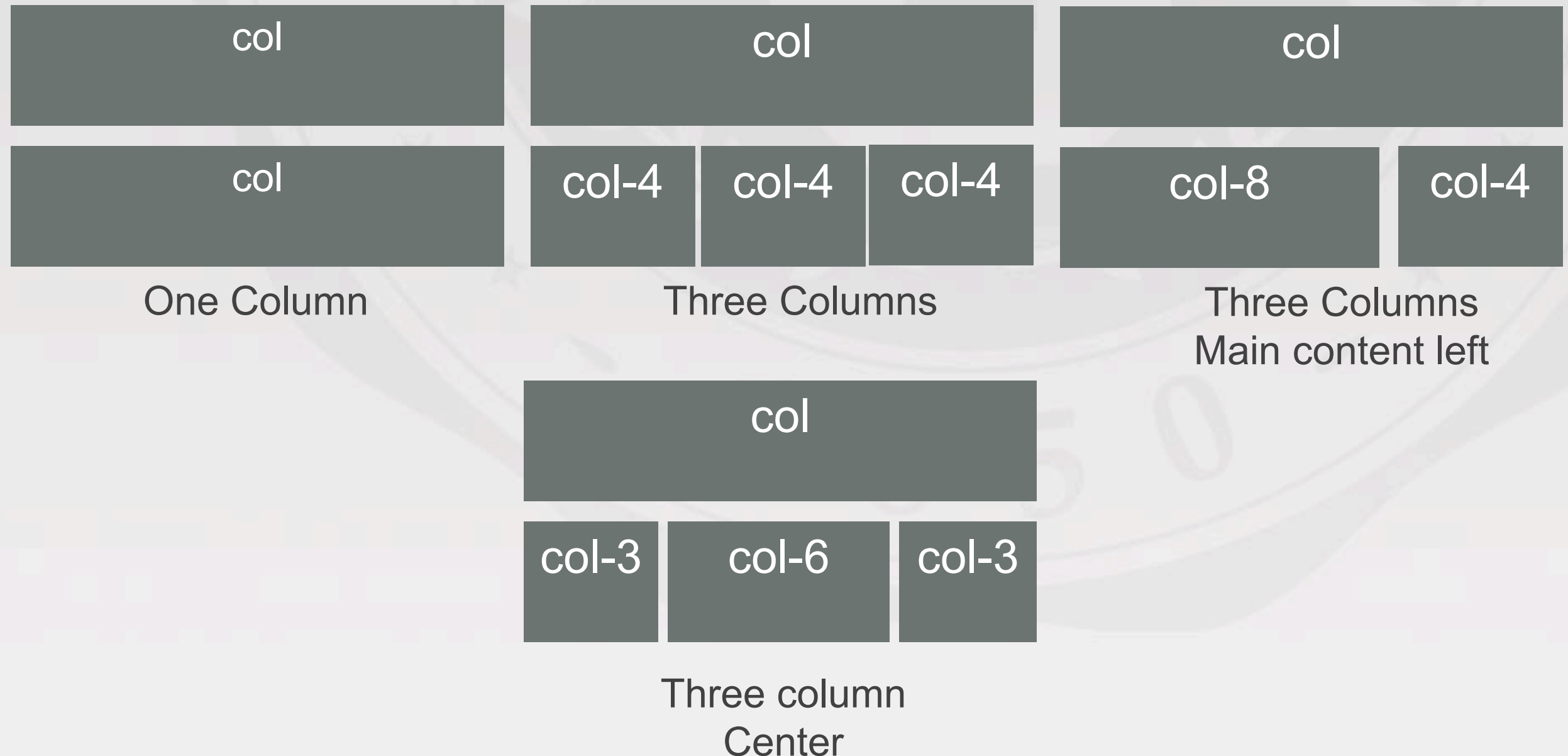



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Review of HTML Elements

Code Academy: [Containers in CSS Grids](#)

- **Grid Variations**





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Viewport
Avg W = 1920px

Page

Extra large
≥1200px

col-xl

Large
≥960px

col-lg

Medium
≥768px

col-md

Small
≥576px

col-sm

Extra small
<576px

col-

For example, a column with “col-sm” will be stacked vertically once the viewport reaches a width of 576px (i.e., mobile devices).



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How to Build a CSS Grid Using BS4

Add [display property](#) to toggle responsively the display value of components to hide or show in different viewport sizes.

The class is named using the format:

.d-{breakpoint}-{value} for sm, md, lg, and xl

Where values is one of none (hidden) or inline, block, ... (shown)

Page

```
<div class="d-none d-md-block container">
```

```
<div id="section_1" class="row">
```

```
<div class="col-sm-3">
```

```
<div class="col-sm-9">
```

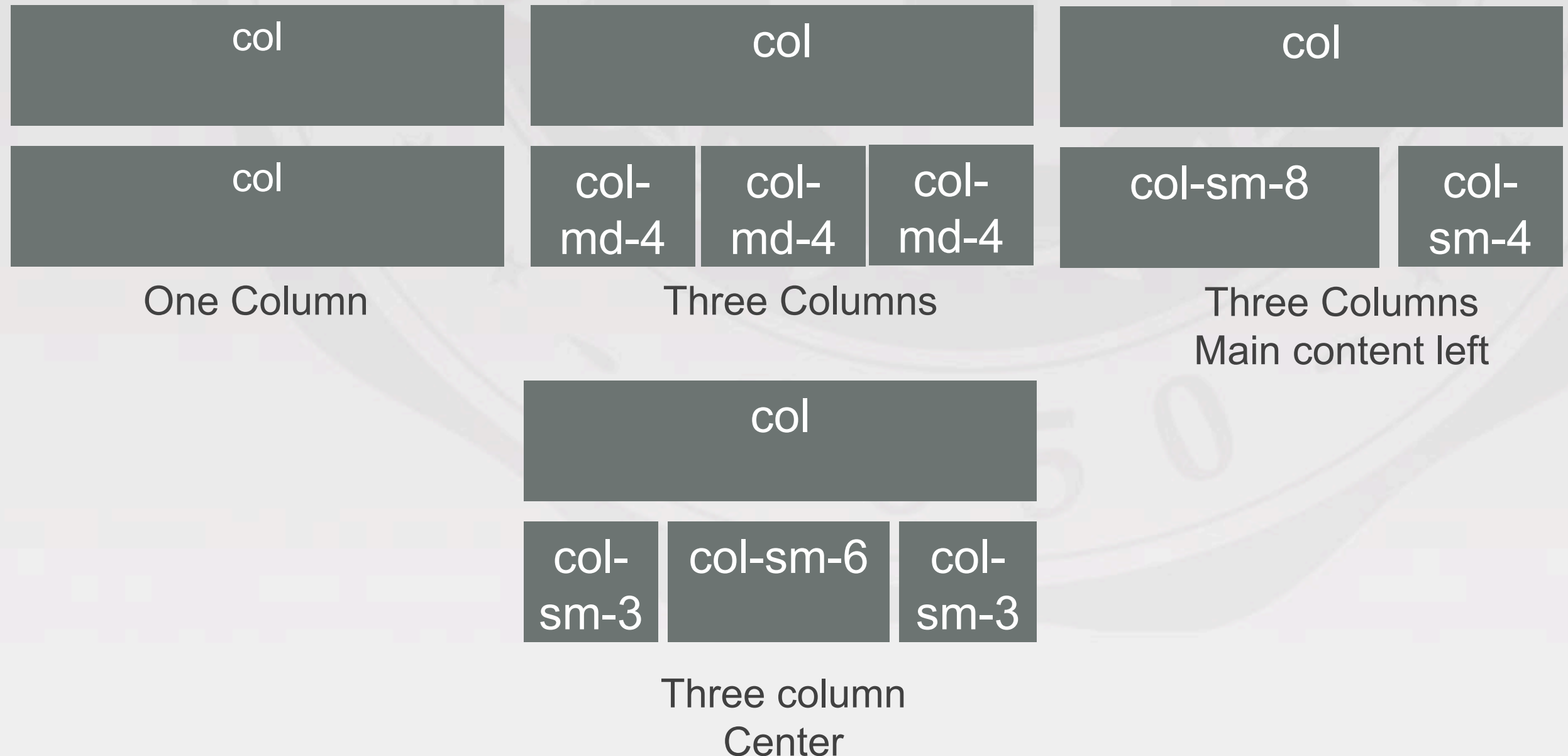


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Review of HTML Elements

Code Academy: [Containers in CSS Grids](#)

- **Grid Breakpoints (Experiment to get at the best results)**





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Screen Size	Class
Hidden on all	.d-none
Hidden only on xs	.d-none .d-sm-block
Hidden only on sm	.d-sm-none .d-md-block
Hidden only on md	.d-md-none .d-lg-block
Hidden only on lg	.d-lg-none .d-xl-block
Hidden only on xl	.d-xl-none
Visible on all	.d-block
Visible only on xs	.d-block .d-sm-none
Visible only on sm	.d-none .d-sm-block .d-md-none
Visible only on md	.d-none .d-md-block .d-lg-none
Visible only on lg	.d-none .d-lg-block .d-xl-none
Visible only on xl	.d-none .d-xl-block



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Exercise: Build Your Own CSS Grid

- Respond to the feedback to your assignment in Canvas
- Start to plan the layout of your site by creating a CSS grid using div containers, rows, and columns
 - Don't worry about positioning all the elements within columns, we'll add CSS styling properties later
- Divide your site into separate sections to organize the content for your digital portfolio, for example, About Me, Projects, Contact Info, and so on...
- Refer to the [Bootstrap 4 documentation on CSS Grids as a reference](#)
- Rely on the web browser developer tools to re-size your site according to different types of device to see the end result – take measures to ensure the content appears correctly
- Next week, we will review CSS properties to allow you to style elements



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Break (10 min.)



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What will we be learning today?

By the end of today, you should be able to:

1. Demonstrate knowledge of layers and masks
2. Demonstrate knowledge of working with selections
3. Transform images





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How to compose images in Photoshop...

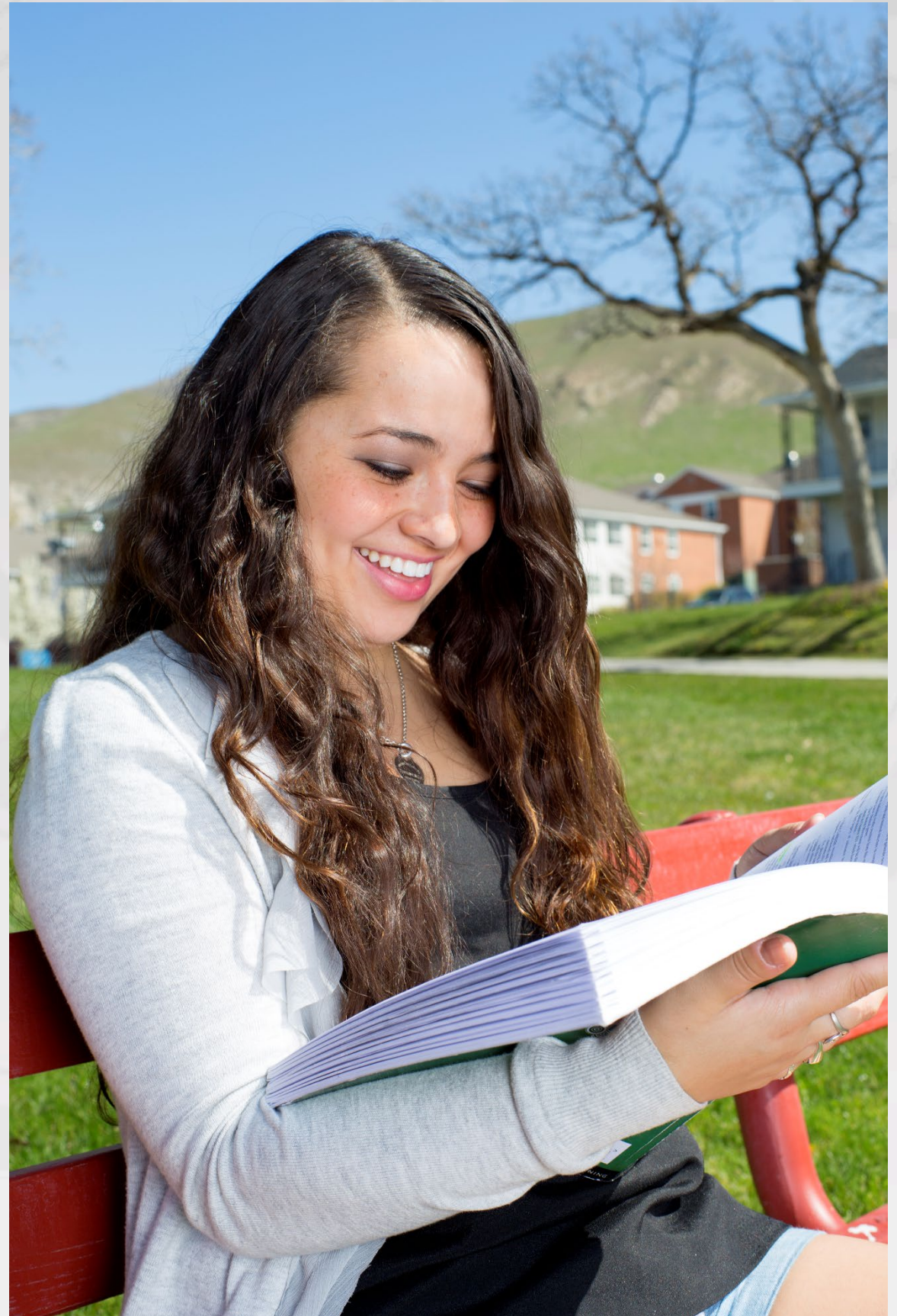
- Making changes to an area within an image in Photoshop is a two-step process.
- First, select the part of an image you want to change with one of the selection tools.
- Second, use other tools and features to make changes to the image, such as applying adjustment layers, effects, and filters.
- There are four types of selections:
 1. Geometric selections
 2. Freehand selections
 3. Edge-based selections
 4. Color-based selections



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Creating a new document in Ap

1. Choose *Window > Workspace > Reset Essentials*.
2. Choose *File > Open*. Select the original picture file labeled as “*Spring Housing Photo*”.
3. Choose *File > Save as*.
4. Write “*Copy of Spring Housing Photo*” in the filename textbox.
5. Select PNG as the file format type.
6. Click the As a Copy checkbox in the Save checkbox at the bottom.
7. Click Save.
8. Create a duplicate layer for the Background image. Toggle the background to invisible, we will be working with the Background copy.

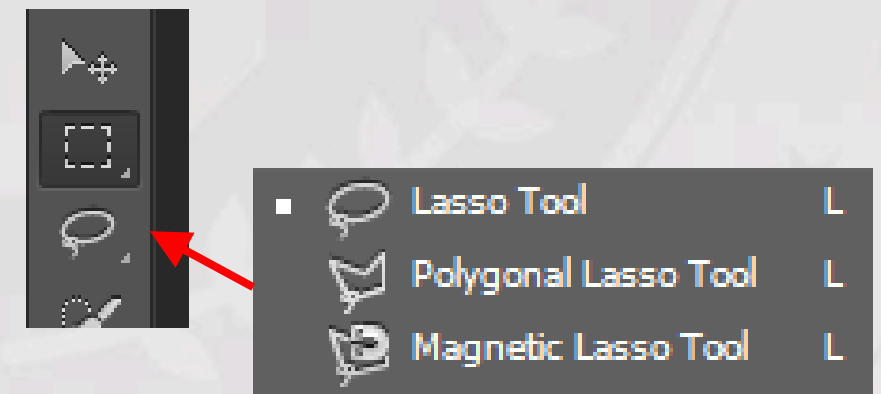


Freehand selections

The *Lasso tool* traces a freehand selection around an area.

The *Polygonal Lasso tool* sets anchor points in straight-line segments around an area.

The *Magnetic Lasso tool* works something like a combination of the other two lasso tools, and gives best results when good contrasts exists between the selected area and its surroundings.






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Selecting with the lasso tools

Select the Zoom tool, and click an area to select. *Make sure you can see the entire area in the window.*

Select the Lasso tool (). Starting at the beginning of the selection, drag around rounded ends, tracing the shape as accurately as possible. *Do not release the mouse button.*

Press the Alt key, and then release the mouse button so that the lasso pointer changes to the polygonal lasso shape. *Do not release the Alt key.*

Release the Alt key to alternate between both tools.





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Selecting with the lasso tools

Using the polygonal shape tool, click the starting point of the selection, and then release Alt.

The area is now entirely selected.

By right clicking on the selected area, you will get the following list of options:

Choose *Select Inverse* and then *Select and Mask*.

To create a new selected area

To select the surrounding area

Soften selection outline

Adjust parameters of the selected outline

Defined selected area as a new layer

Deselect

Select Inverse

Feather...

Select and Mask...

Save Selection...

Make Work Path...

Layer Via Copy

Layer Via Cut

New Layer...

Free Transform

Transform Selection

Fill...

Stroke...

Last Filter

Fade...

Render 3D Layer

New 3D Extrusion



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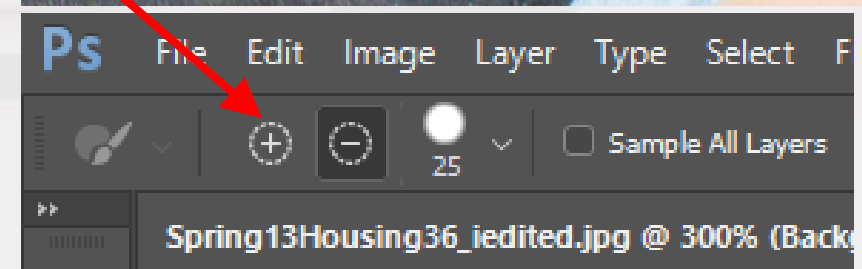
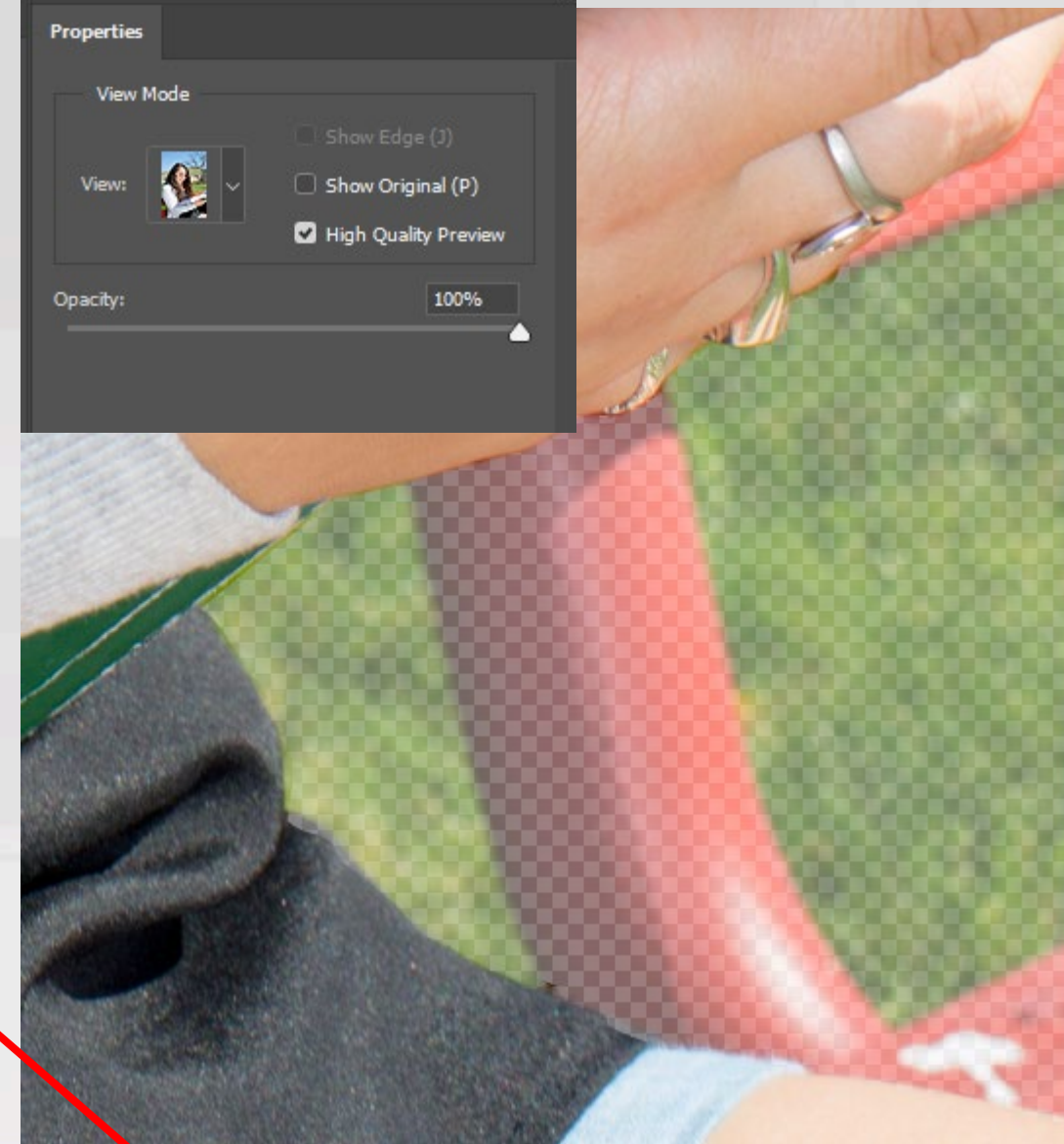
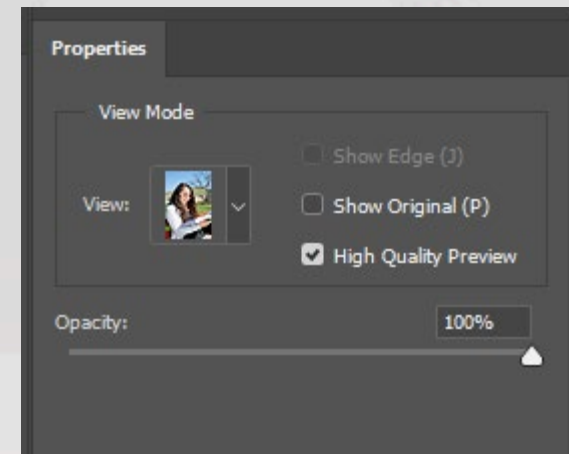
Selecting with the lasso tools

In the Properties panel, choose the type of preview option and adjust the opacity to see the results. Choose *Refine Edge Brush tool* to exclude areas from the selection.

Ensure that the (+) icon is selected. Left-click and drag the refine edge brush tool over the area that you would like to exclude. To include areas, select the (-) option.

Alternatively, you can select the *Brush tool* to include areas in the selection. Ensure that the (+) icon is selected, since (-) is to remove from a selection.

Once you have isolated the selected area, click OK. Try adjusting the opacity of the brush using the dropdown menu.

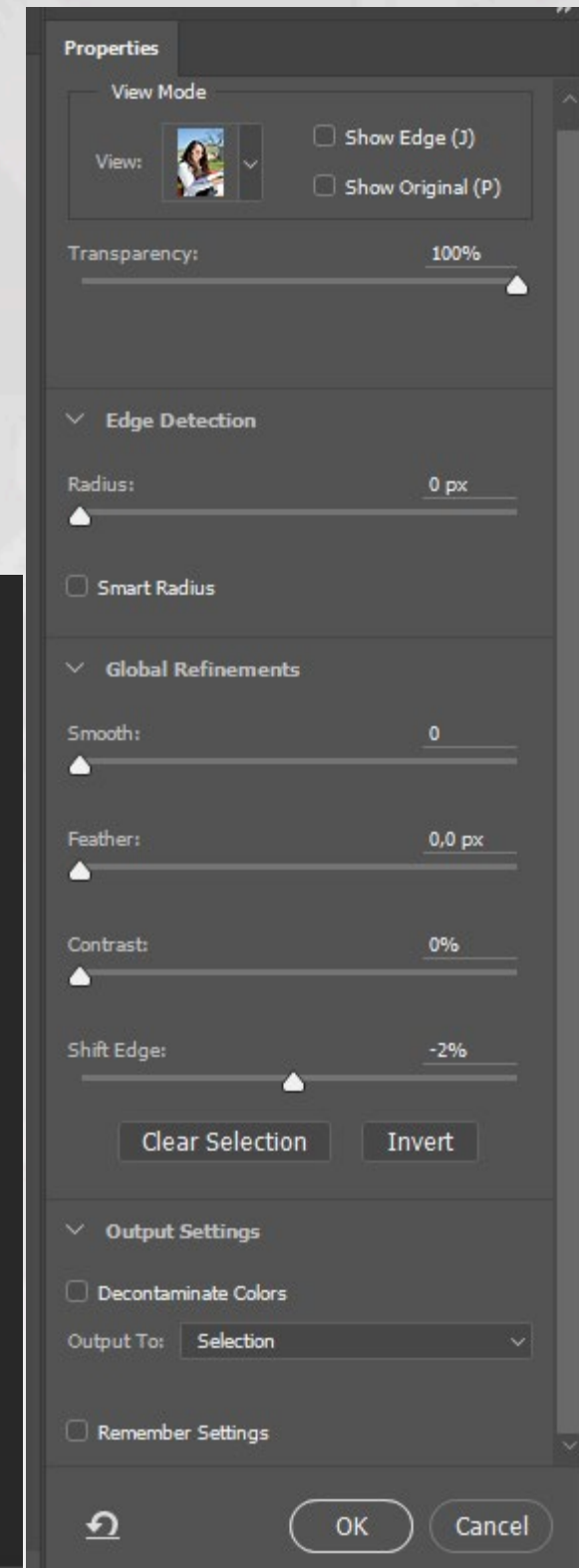
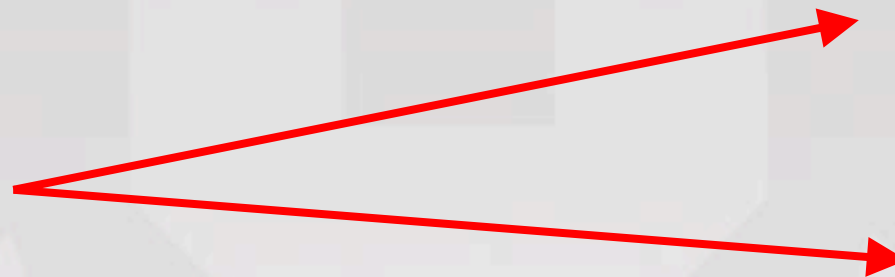


Selecting with the lasso tools

Experiment by adjusting these parameters in order to optimize the selected area.

- Radius: Size of the selection border in which edge refinement occurs
- Smooth: Reduces irregular areas
- Feather: Soft-edge transition
- Contrast: Remove fuzziness
- Shift Edge: Shrink or enlarge the selection boundary

Once you have found the best settings to isolate the selected area, click OK. Use the Refine Edge Brush Tool to adjust the edge and select Decontaminate Colors to refine the edge further.



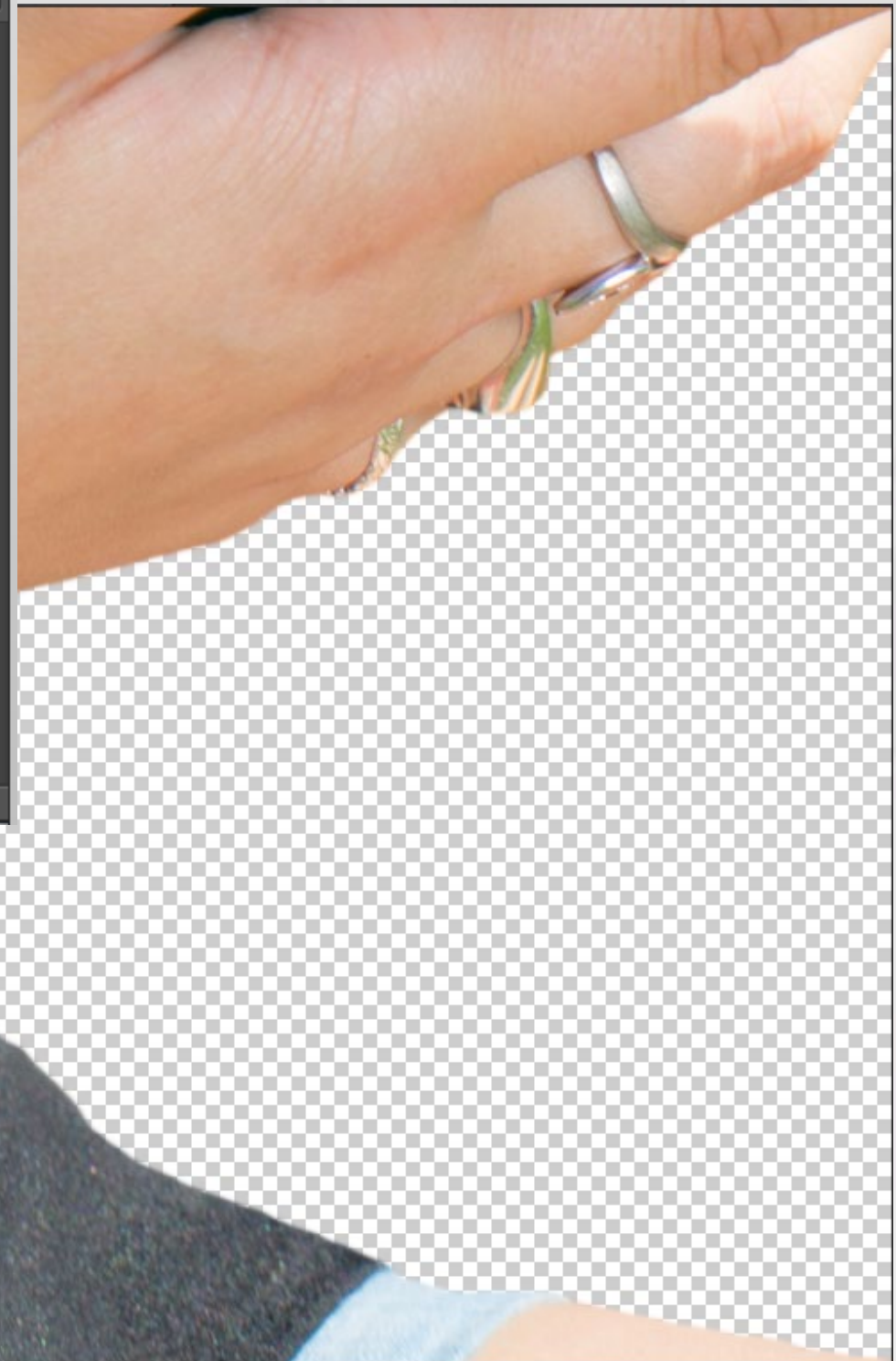
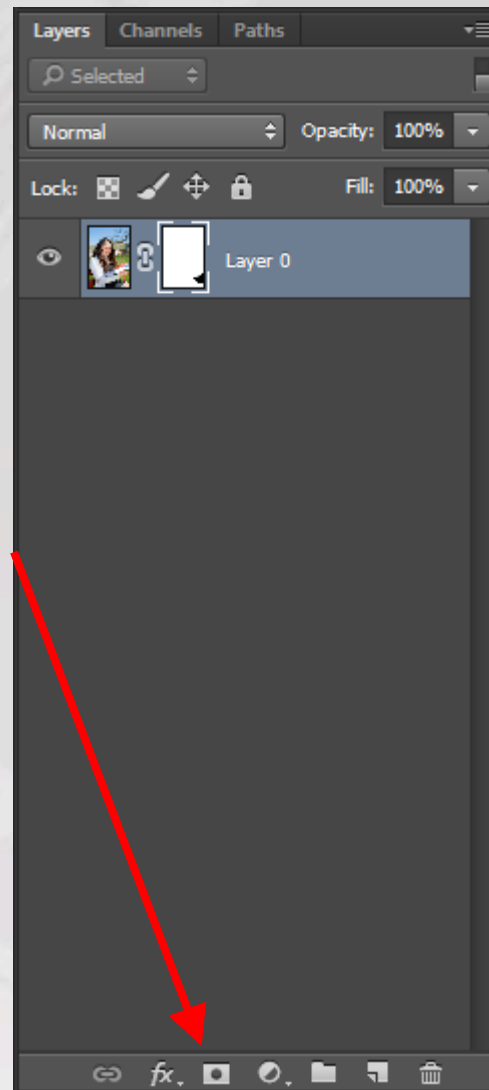


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Selecting with the lasso tools

At the bottom of the Layers panel, click the *Add Layer Mask* button to create a layer mask. The selection becomes a mask.

Everything outside the selection is transparent, represented by a checkerboard pattern. The same area is also shown as a black area on the mask thumbnail.

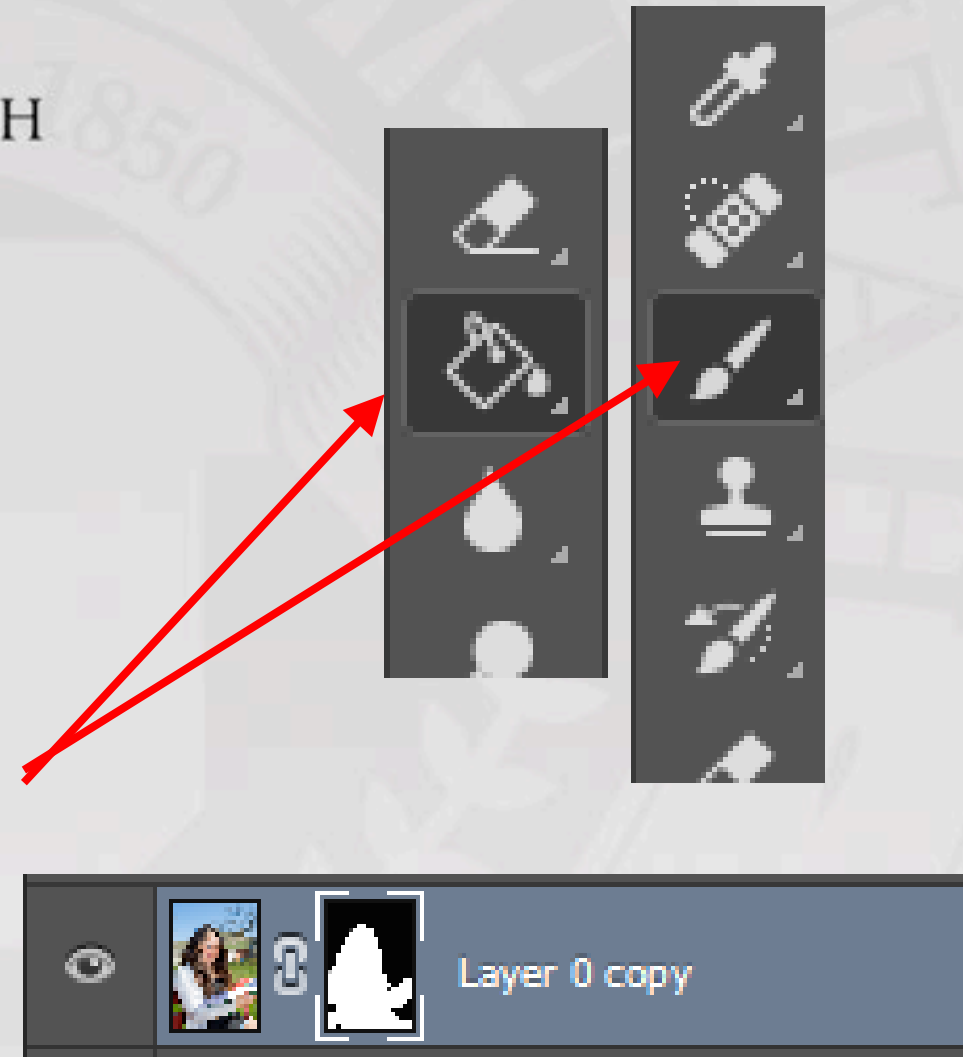


Adding Selections to a Layer Mask

To move an image while making a selection, select the space bar to move the image and revert back to using the tool.

In order to add a selection to a layer mask, select the layer mask. Once the layer mask is selected in the Layers panel, choose either the *Paint Bucket Tool* or *Brush Tool*. Select a black foreground color and paint over the selected area.

To view the mask ALT + click on the thumbnail or select the Channels panel and toggle the visibility of all the colors.

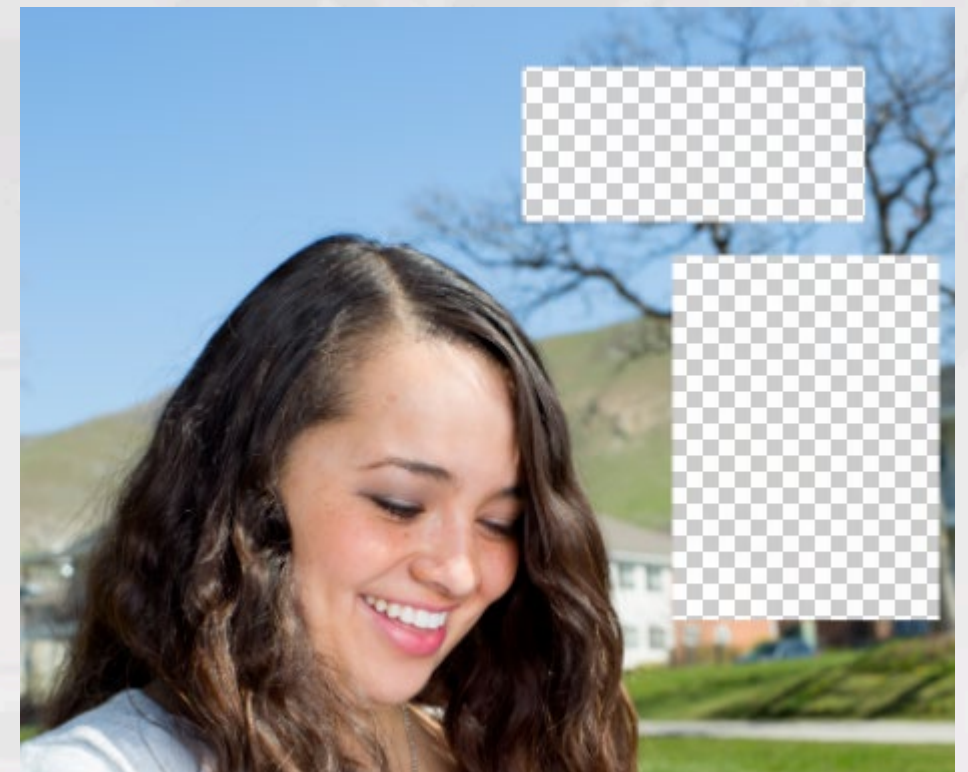
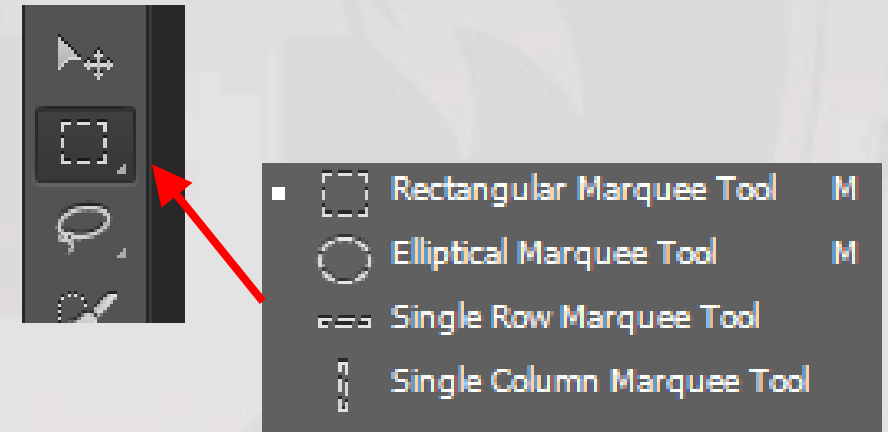


Marquee selections

The *Rectangular Marquee tool* selects a rectangular area in an image.

The *Elliptical Marquee tool* selects elliptical areas.

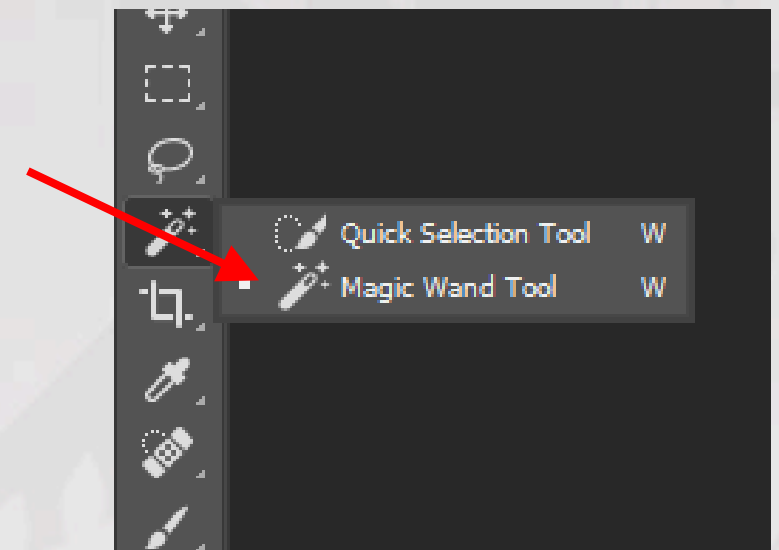
The *Single Row and Column Marquee tool* select either a 1-pixel high row or wide column.



Color-based selections

The *Magic Wand tool* selects parts of an image based on the similarity in color of adjacent pixels. It is useful for selecting odd-shaped areas that share a specific range of colors.

The *Magic Wand tool* allows you to select an area of consistent color without having to trace an outline.





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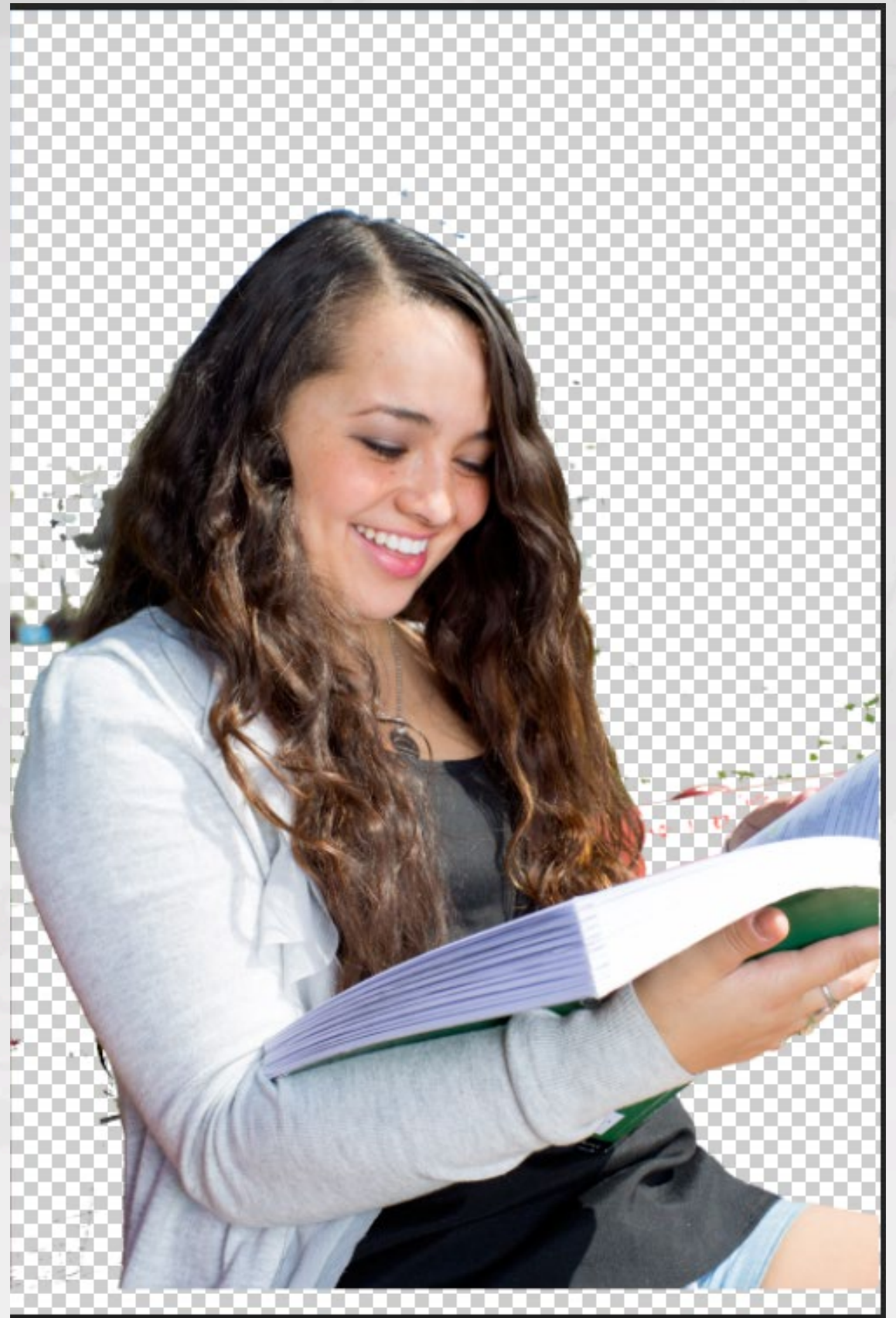
Selecting with the magic wand tool

Repeat this process using the Magic Wand tool.

Click on areas of distinct colors to isolate them and delete them.

Hint: Once you have selected an area, Choose *Edit > Clear* to delete it to speed up the process.

Also, use a combination of geometric selection tools to delete large areas left over.





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Selecting with the magic wand tool

One helpful tip when using the magic wand tool:

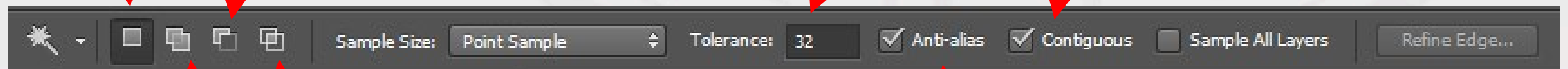
Toggle between these different modes to adjust the sensitivity of the brush.

Set range when sampling color (higher values samples a broader range of colors)

New selection

Subtract from selection

Sample only contiguous pixels (otherwise, all pixels that use the same colors are selected)



Add to selection

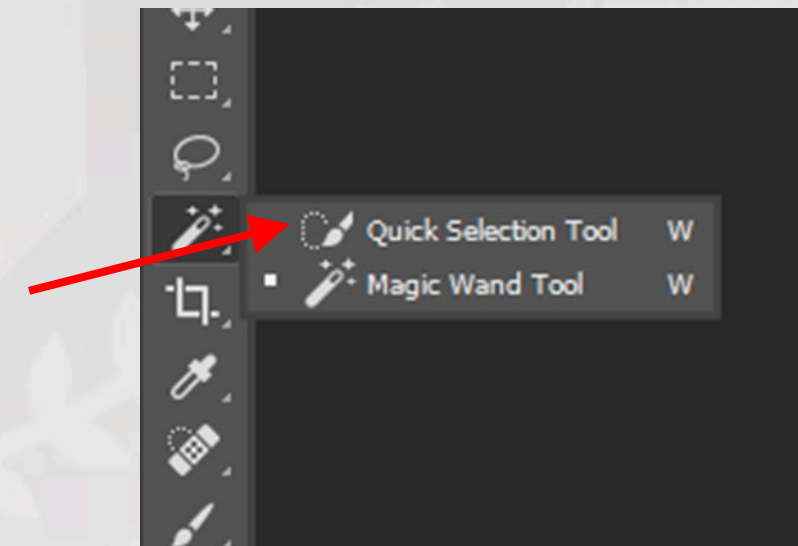
Intersect with selection

Smooths edge transition for the selection

Edge-based selections

The *Quick Selection tool* quickly paints a selection by automatically finding and following defined edges in the image.

As you drag, the selection expands outward and automatically finds and follows defined edges in the image.





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Selecting with the quick selection tool

Zoom in so that you can see the whole area to select well.

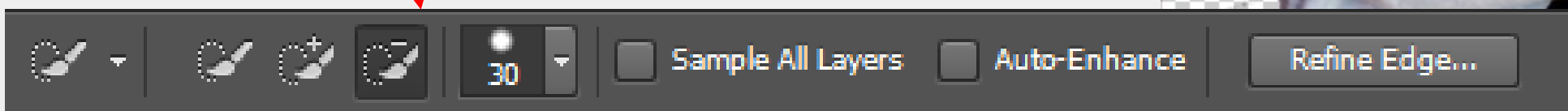
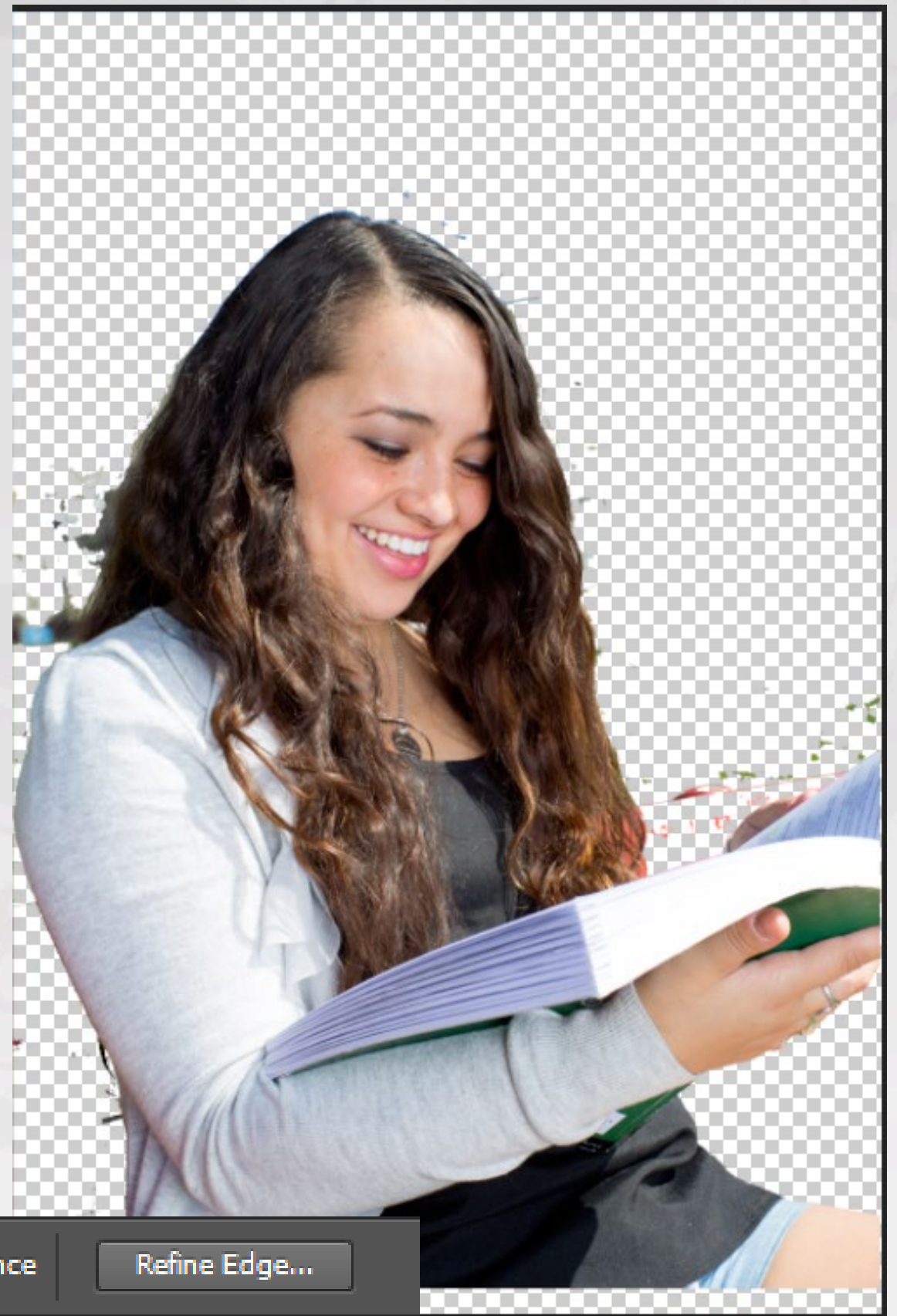
Select the quick selection tool.

Select Auto Enhance in the options bar.

Click on an area near the outside edge of the area to be selected.

The quick selection tool finds the full edge automatically.

Hints: Toggle between the add and subtract selection mode as well as experiment with finer brush sizes.



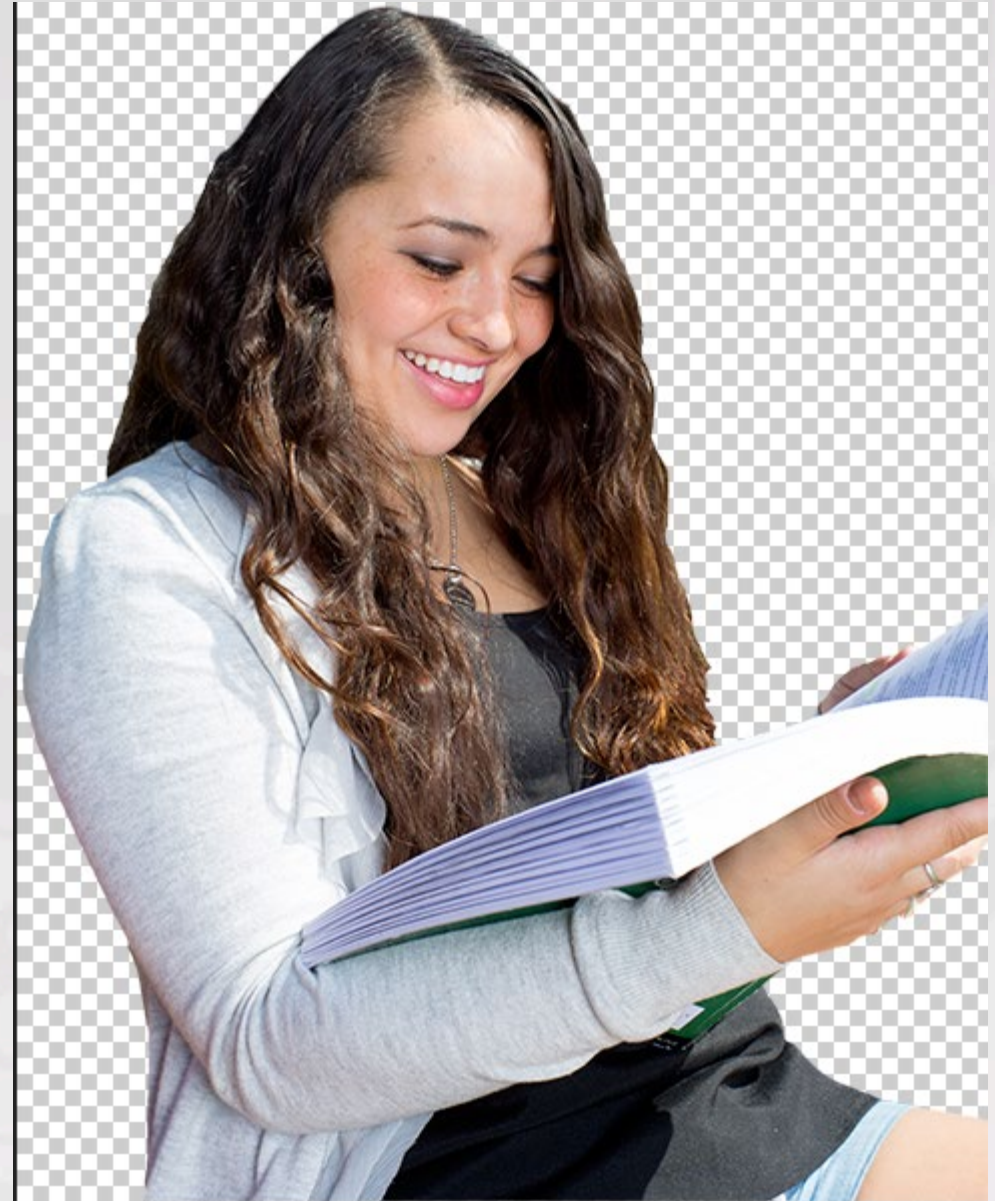


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Exercise: Selections Using Masks in Photoshop

Take a few moments to practice using these tools.

Try to isolate the background using a layer mask.





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Looking Forward to Project #1: Raster Graphics in Photoshop

- Apply the skills you have learned in Photoshop to edit a photograph
- For example, you may want to create a user persona as part of the requirements for the HCI class, a professional headshot for your portfolio in GitHub, background image for your site, ...
- You can take your own photograph, use a pre-existing one, or download a Creative Commons licensed one from the web.
- You are expected to demonstrate knowledge of retouching and blending tools, selection tools, filters, and adjustment layers as well as export the project in a format optimized for the web.
- You are required to submit the following files as a compressed zip folder:
 - Revised version of the image (.jpg, .png, ...)
 - Photoshop project file (.PSD)



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Looking Forward to Project #1: Raster Graphics in Photoshop

- If you did any destructive edits to correct flaws in the image, just explain the steps you've taken as a comment in Canvas when submitting your assignment.
- Formatting requirements:
 - Prepare the image to be published for the web – less than 250Kb or a quarter of a MB.
 - If a filter is applied to the image, enable the smart filter option
- The assignment is due at 11h59PM on Friday, the 8th of February.



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Looking Forward to Project #1: Raster Graphics in Photoshop

Maria Golson

MATH Student

Maria Golson struggles in math. She is now enrolled in the undergraduate physics program, which has an introductory math course as a prerequisite. She is very passionate about learning and hopes to land a job as a laser engineer when she completes the program. Her biggest challenge so far has been calculating derivatives. She spends most of her time outside of class talking with her friends and working on example problems featured in the textbook. Because office hours with the professor are limited to only a few during the week, she often gets stuck on these problems and feels frustrated about her lack of progress in the course.

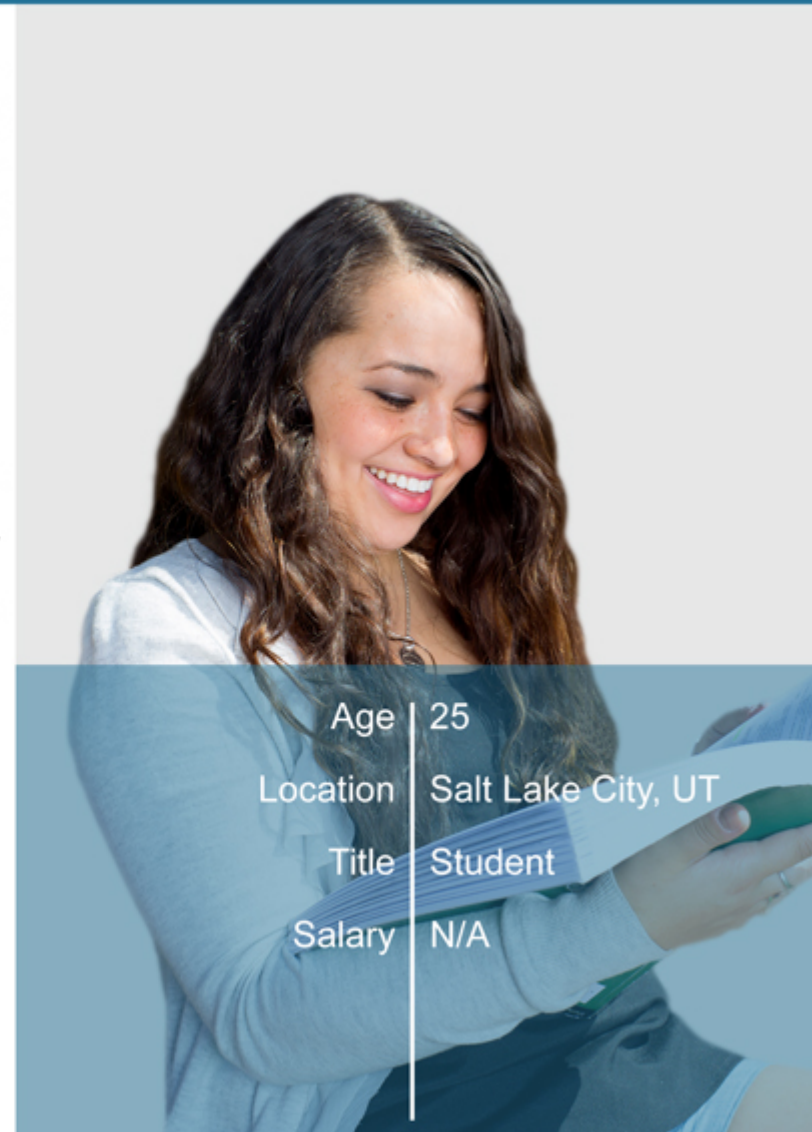
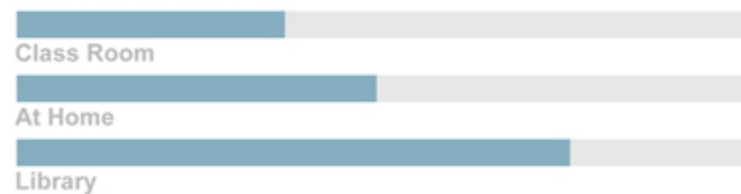
GOALS

- Learn derivatives to estimate functions through interactive examples available online with step by step corrective feedback

FRUSTRATIONS

- Problems in textbook are too advanced
- Not enough opportunities for one-on-one tutoring
- No feedback available in example problems

LEARNING METHOD



Age	25
Location	Salt Lake City, UT
Title	Student
Salary	N/A



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In Preparation for Next Week

- Watch the instructional videos assigned for this week and post on the discussion forum.
- Complete the CodeAcademy tutorial – [Make a Website: Site Structure](#)
- Skim the documentation on the CSS grid using the Bootstrap 4 framework