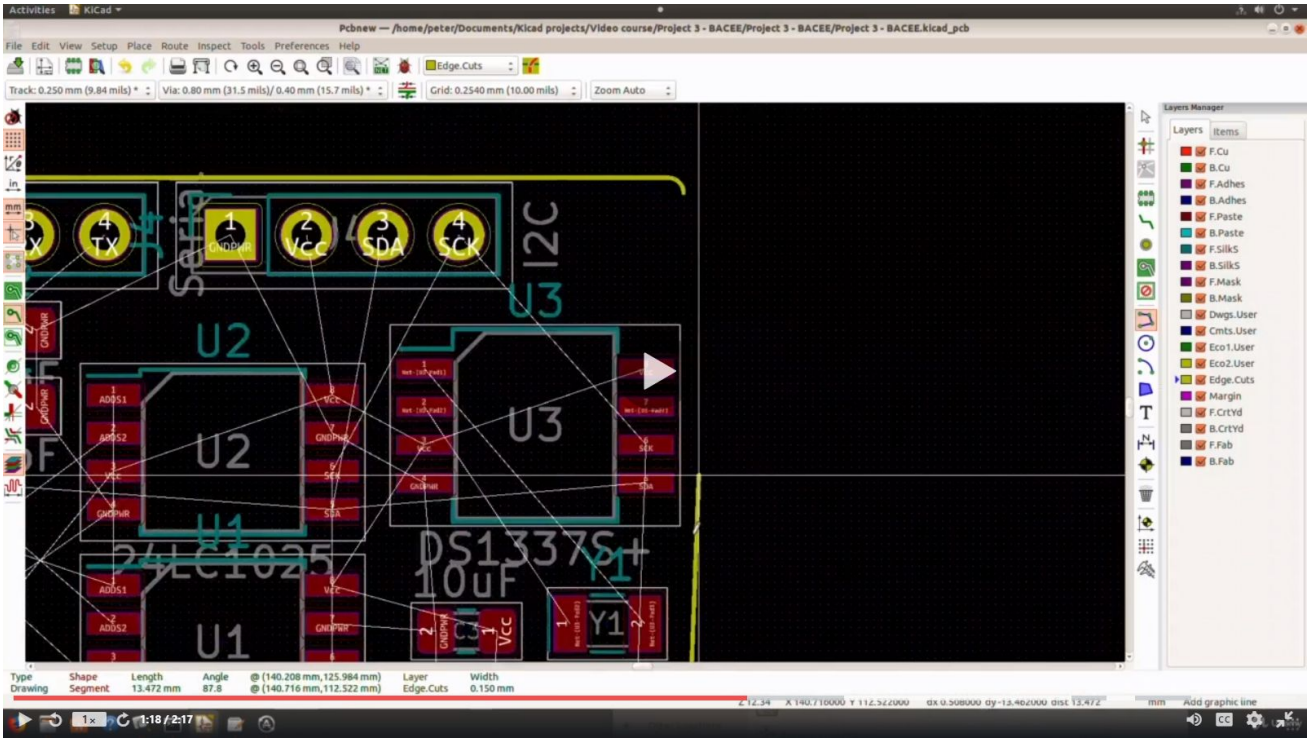
REPORT JUNE 11

Date:	11 JUNE 2020	Name:	Rakshith B
Course:	Kicad on Udemy	USN:	4AL16EC409
Topic:	A hands –on tour of kicad with a simple project-layout	Semester & Section:	6th SEM B
Github Repository:	Rakshith-B		

FORENOON SESSION DETAILS

Image of session



Report –

pcbnew :

Pcbnew is a powerful printed circuit board software tool available for the Linux, Microsoft Windows and Apple OS X operating systems. Pcbnew is used in association with the schematic capture program Eeschema to create printed circuit boards. Pcbnew manages libraries of footprints. Each footprint is a drawing of the physical component including its land pattern (the layout of pads on the circuit board).

The required footprints are automatically loaded during the reading of the Netlist. Any changes to footprint selection or annotation can be changed in the schematic and updated in pcbnew by regenerating the netlist and reading it in pcbnew again.

Several new features have been added to Pcbnew which impact the board file format. Using these new features in board designs will prevent them from being opened with previous versions of Pcbnew. • Rounded rectangle footprint pads. • Custom shape footprint pads. • Footprint pad

names longer than four characters. • Keep out zones on more than a single layer. • 3D models offset saved as millimeters instead of inches. • Footprint text locking

Netlist

If the schematic is modified (after a printed circuit board has been generated), the following steps must be repeated: • Generate a new netlist file using Eeschema. • If the changes to the schematic involve new components, the corresponding footprints must be assigned using Cvpcb. • Launch Pcbnew and re-read the modified netlist (this will also re-read the file with the footprint selections). Pcbnew will then load automatically any new footprints, add the new connections and remove redundant connections. This process is called forward annotation and is a very common procedure when a PCB is made and updated.

DRC:

A DRC error is raised when a value smaller than the minimum value specified is encountered. The second dialog panel is:This dialog also allows to enter a ”stock” of tracks and via sizes. When routing, one can select one of these values to create a track or via, instead of using the netclass’s default value. Useful in critical cases when a small track segment must have a specific size.

footprints:

This option is accessed via the Postprocess/Create Cmp file menu option. However, no file will be generated unless at least one footprint has the Normal+Insert attribute activated (see Editing Footprints). One or two files will be produced, depending upon whether insertable components are present on one or both sides of the PCB. A dialogue box will display the names of the file(s) created.

edge cuts:

The smallest unit in pcbnew is 1 nanometer. All dimensions are stored as integer nanometers. Pcbnew can generate up to 32 layers of copper, 14 technical layers (silk screen, solder mask, component adhesive, solder paste and edge cuts) plus 4 auxiliary layers (drawings and comments) and manages in real time the hairline indication (rats nest) of missing tracks. The display of the PCB elements (tracks, pads, text, drawings...) is customizable: Pcbnew 2 / 154 • In full or outline. • With or without track clearance

mounting holes :

ave a look into the mounting hole library.

The _Pad mounting holes are plated.

If you want it connected to some net, you can either use the conn01x01 symbol to connect the plated mounting hole to any net or you can use the same trick as is used for stitching vias. (give the pad the netname you want with the properties dialog in pcb_new)

If you don't want it connected just place it from within pcb_new and don't edit anything.

To place a footprint from within pcb_new without it being connected to a symbol look in the right toolbar. There is a symbol that looks like a dip footprint. (tooltip: add footprint)

Copper fill Zones:

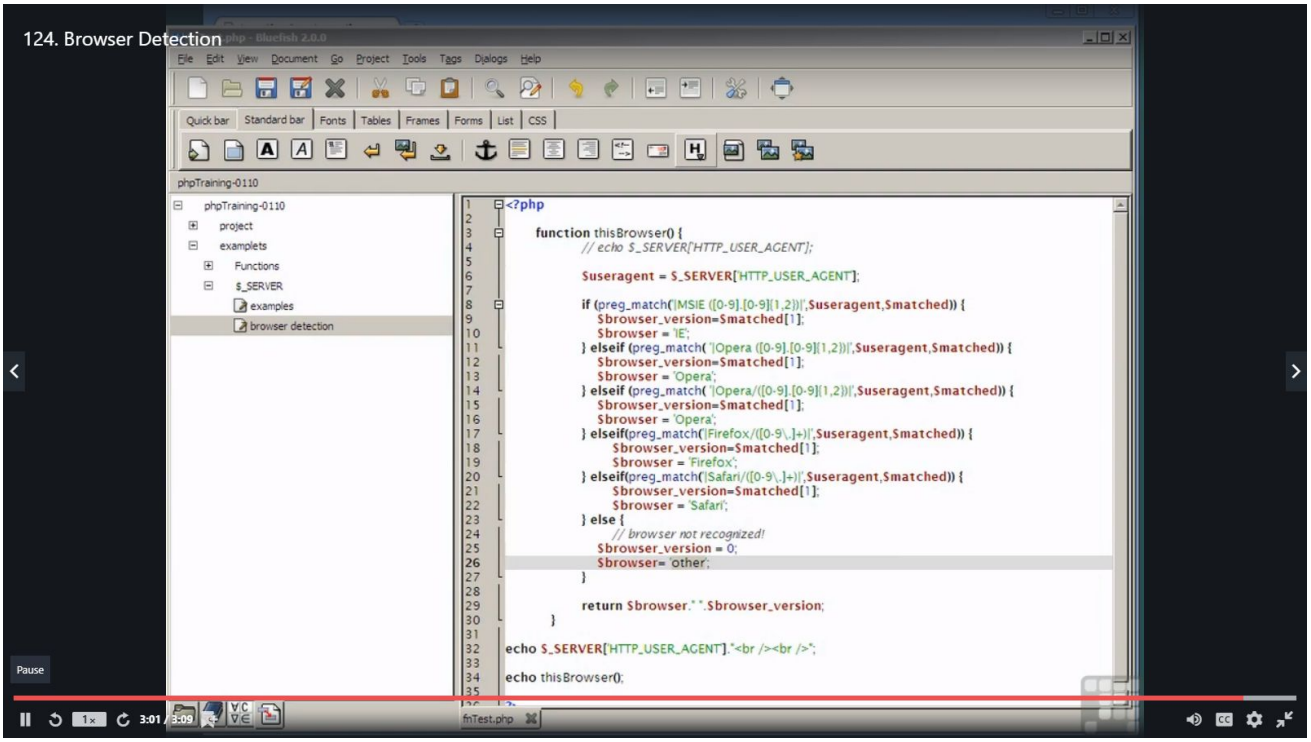
Pad (and track) connections to filled copper areas are checked by the DRC engine. A zone must be filled (not just created) to connect pads. Pcbnew currently uses track segments or polygons to fill copper areas. Each option has its advantages and its disadvantages, the main disadvantage being increased screen redraw time on slower machines. The final result is however the same. For calculation time reasons, the zone filling is not recreated after each change, but only: • If a filling zone command is executed. • When a DRC test is performed. Copper zones must be filled or refilled after changes in tracks or pads are made. Copper zones (usually ground and power planes) are usually attached to a net. In order to create a copper zone you should: • Select parameters (net name, layer...). Turning on the layer and highlighting this net is not mandatory but it is good practice. • Create the zone limit (If not, the entire board will be filled.). • Fill the zone. Pcbnew tries to fill all zones in one piece, and usually, there will be no unconnected copper blocks. It can happen that some areas remain unfilled. Zones having no net are not cleaned and can have insulated areas.

Note • The DRC is active when creating zone outlines. • A corner which creates a DRC error will not be accepted by Pcbnew.

Date:	**11 JUNE 2020**	**Name:RAKSHITH B**
Course:	**PHP & MYSQL On Udemy**	**USN:4AL16EC409**
Topic:	**PHP functions,Using external files and images**	**Semester & Section:6 B**

AFTERNOON SESSION DETAILS

Image of session



Report –

Php Functions:

The real power of PHP comes from its functions.

PHP has more than 1000 built-in functions, and in addition you can create your own custom functions.

PHP Built-in Functions

PHP has over 1000 built-in functions that can be called directly, from within a script, to perform a specific task.

Please check out our PHP reference for a complete overview of the PHP built-in functions.

PHP User Defined Functions

Besides the built-in PHP functions, it is possible to create your own functions.

- **A function is a block of statements that can be used repeatedly in a program.**
- **A function will not execute automatically when a page loads.**
- **A function will be executed by a call to the function.**

Create a User Defined Function in PHP

A user-defined function declaration starts with the word function:

Syntax

```
function functionName() {
  code to be executed;
}
```

PHP Return Type Declarations

PHP 7 also supports Type Declarations for the return statement. Like with the type declaration for function arguments, by enabling the strict requirement, it will throw a "Fatal Error" on a type mismatch.

To declare a type for the function return, add a colon (:) and the type right before the opening curly ({)bracket when declaring the function.

In the following example we specify the return type for the function:

Example

```php
?php declare(strict_types=1); // strict requirement

unction addNumbers(float $a, float $b) : float {

return $a + $b;



cho addNumbers(1.2, 5.2);

>
```

PHP - Validate E-mail

The easiest and safest way to check whether an email address is well-formed is to use PHP's filter_var() function.

In the code below, if the e-mail address is not well-formed, then store an error message:

```
$email = test_input($_POST["email"]);
if (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
  $emailErr = "Invalid email format";
}
```

The get_browser() function in PHP is an inbuilt function which is used to tell the user about the browser's capabilities.

The get_browser() function looks up the user's browscap.ini file and returns the capabilities of the user's browser.

The user_agent and the return_array are passed as parameters to the get_browser() function and it returns an object or an array with information about the user's browser on success, or FALSE on failure.

Syntax:

```
get_browser(user_agent, return_array)
```

Parameters Used:

The get_browser() function in PHP accepts two parameters.

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```
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```

Parameters Used:

The get_browser() function in PHP accepts two parameters.

```
Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.7) Gecko/20040803
Firefox/0.9.3

Array
(
    [browser_name_regex] => ^mozilla/5\.0 (windows; .;
        windows nt 5\.1; .*rv:.*) gecko/.* firefox/0\.9.*$
    [browser_name_pattern] => Mozilla/5.0 (Windows; ?;
                Windows NT 5.1; *rv:*) Gecko/* Firefox/0.9*
    [parent] => Firefox 0.9
    [platform] => WinXP
    [browser] => Firefox
    [version] => 0.9
    [majorver] => 0
    [minorver] => 9
    [cssversion] => 2
    [frames] => 1
    [iframes] => 1
    [tables] => 1
    [cookies] => 1
     => 1
    [javaapplets] => 1
    [activexcontrols] =>
```

```
    [beta] => 1
)
```

PHP Open File - fopen()

A better method to open files is with the fopen() function. This function gives you more options than the readfile() function.

We will use the text file, "webdictionary.txt", during the lessons:

```
AJAX = Asynchronous JavaScript and XML
CSS = Cascading Style Sheets
HTML = Hyper Text Markup Language
PHP = PHP Hypertext Preprocessor
SQL = Structured Query Language
SVG = Scalable Vector Graphics
XML = EXtensible Markup Language
```

The first parameter of fopen() contains the name of the file to be opened and the second parameter specifies in which mode the file should be opened. The following example also generates a message if the fopen() function is unable to open the specified file:

Example

```
?php

myfile = fopen("webdictionary.txt", "r") or die("Unable to open file!");

cho fread($myfile,filesize("webdictionary.txt"));

close($myfile);

>
```

PHP Read File - fread()

The fread() function reads from an open file.

The first parameter of fread() contains the name of the file to read from and the second parameter specifies the maximum number of bytes to read.

The following PHP code reads the "webdictionary.txt" file to the end:

```
fread($myfile,filesize("webdictionary.txt"));
```

PHP Close File - fclose()

```php
<?php

$myfile = fopen("webdictionary.txt", "r");
// some code to be executed....
fclose($myfile);
?>
```

Read Text Files

The fgets() function is used to read a single line from a file.

The example below outputs the first line of the "webdictionary.txt" file:

Example

```php
?php

 $myfile = fopen("webdictionary.txt", "r") or die("Unable to open
l e!");

echo fgets($myfile);

 fclose($myfile);

>
```