

The background of the slide is a grayscale image of a circuit board. It features a network of black lines representing traces, with several circular pads and vias. The layout is symmetrical and technical in appearance.

# CHAPTER 13 : PROGRAMMING AND LANGUAGES

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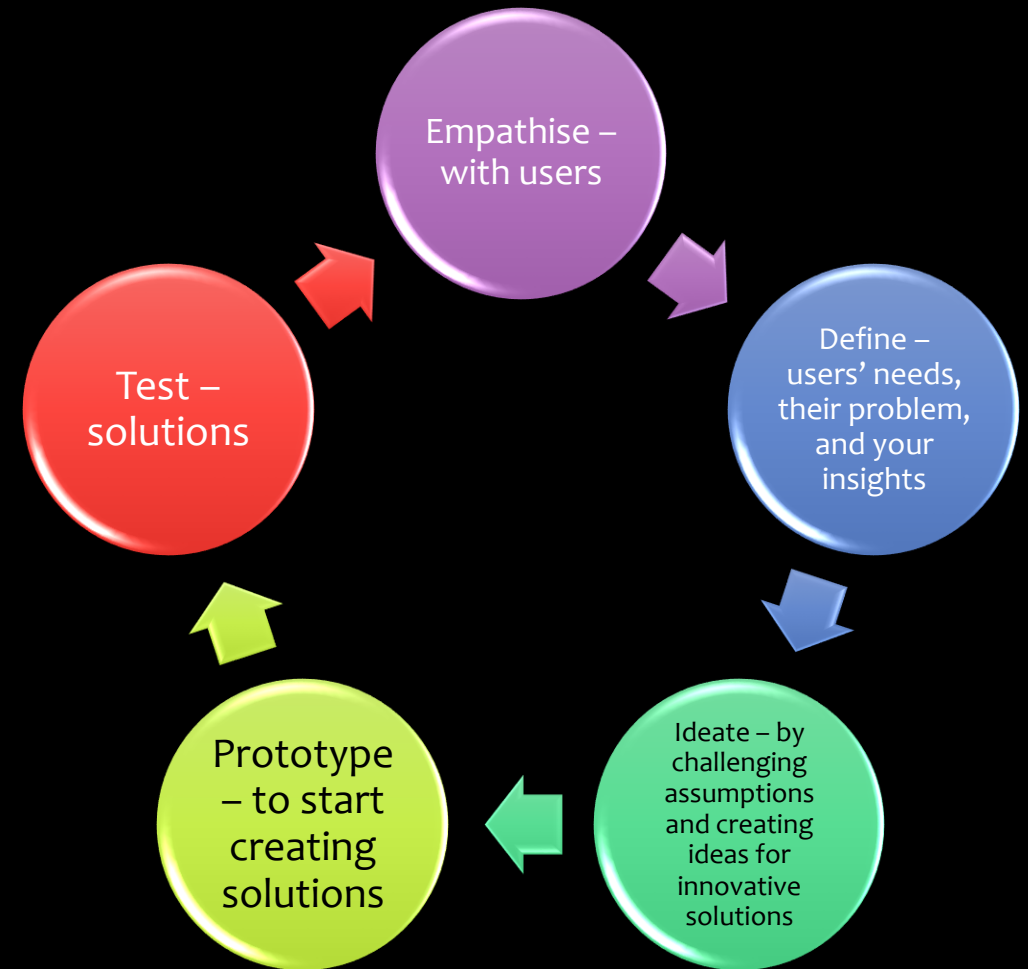
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# PROGRAMMING AND LANGUAGES

- A **programming language** is a formal language, which comprises a set of instructions that produce various kinds of output. Programming languages are used in computer programming to implement algorithms.
- Most programming languages consist of instructions for computers.
- Thousands of different programming languages have been created, and more are being created every year.
- The ten most popular programming languages as : Java, C, C++, Python, C#, JavaScript, VB .NET, R, PHP, and MATLAB.

# DESIGN THINKING

- gives solutions on how to deal and taking care of the issues
- provides a solution-based approach to solving problems.
- An iterative procedure in which we look to comprehend the client and rethink issues trying to distinguish ways on how to solve our problems.



# PHASE 1: EMPATHY

- Developed an empathetic understanding of the problems that we are trying to solve for the users.
- It helps to set aside our own perceptions and gain understanding towards users and their needs.



| Person | Problem faced                                                                                |
|--------|----------------------------------------------------------------------------------------------|
| 1      | searching for information through the books to complete his tasks in any particular subject. |
| 2      | needs to memorize the way that he looks on the navigation map                                |
| 3      | difficulty of finding information related to employment                                      |

# PHASE 2: DEFINE

- The Define stage will help the designers in our team gather great ideas to establish features, functions, and any other elements that will allow them to solve the problems
- Brought together all the knowledges and issues that we've generated and gathered through empathy phase
- we evaluated and synthesized our findings to identify the core issues we have found so far
- collect great ideas to set up apps, functions, or any other elements that will allow us to clarify the problems

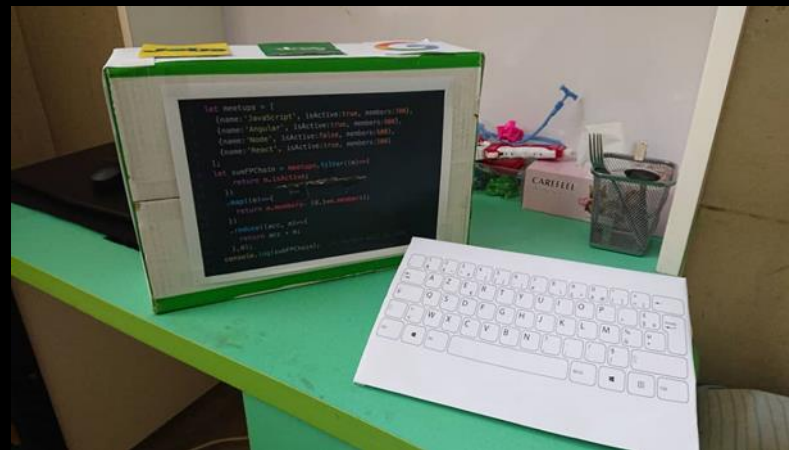
## PHASE 3 : IDEATE

- come up with ideas that may be "out of the box" to identify new solutions to our issue statements
- evolved to figure out the users and their needs, and we have evaluated and synthesized our insights
- brainstorm sessions we used to stimulate free thinking and extend the scope of the questions
- produce rational ideas
- At last, our group decided to proceed on inventing the apps to resolve the users' complications.



# PHASE 4 : PROTOTYPE

- This is an experimental phase, and the aim is to identify the best possible solution for each of the problems
- Produced a model using inexpensive product such as : boxes, tape, papers, etc..
- we have made imaginary Keyboard, Monitor and Apps.



# PHASE 5 : TEST

We've created applications that satisfied our users :-

- solved transportation problem like anyone can call for transport from phone
- get information easily and much more faster and effortless
- can get job from our job-search site