# Assignment 4
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# *GUI Design Based on Cognitive Psychology*

## Summary:

This paper deals with applying cognitive psychology to design GUI. A GUI is considered effective if the user does not spend too much time in learning and understanding its functions. Four main principle are usually proposed for an effective GUI as below:
  - ➢ Focus on users and their tasks instead of technologies.
  - ➢ Consider functions first, presentation later
  - ➢ Simplicity of GUI
  - ➢ Promote learning and delivering information

Also, there are few cognitive psychology theories considered while designing GUI:
  - **Schema Theory:** knowledge is organised into basic building blocks of knowledge, called units
  - **Cognitive Load Theory:** instructional deign theory defining information processing involving long term, short term or working memory
  - **Retention Theory:** refers to amount of information a user can retain in a given amount of time.
  - **Gestalt Law:** is one of the foundations of instructional screen design usually explained with 11 specific laws

To have the attention of the user would be an important point to focus on while designing an GUI, like **placement of texts and images**, it is also important to consider the **limitations of human motor system**. To explain in simple terms the limitation is referred to scenarios where background music is heard when important message or information is being shared visually, this would increase the cognitive load. Lastly, **colours** play an important part of GUI design. Most users reported that soft colours can get their attention to important information, but some reported that bright colours got their attention.

In conclusion this paper proved that if cognitive psychology is not considered when designing GUI, users will face difficulties. And most users also tend to go for simplicity when they are using GUI every day. Familiar icons make user spend less time trying to understand them and their functions.

## Discussion:

Our project has kept the user interface simple, which corresponds to the paper stating in its conclusion that **users like a simple GUI when they are using it every day**. Our device is expected to be used every day, hence the GUI on both the device and the supportive app is kept simple. During co-operative feedback the test supervisor had been able to perform all the requested tasks well within time, and without spending too much time on trying to understand the icons, hence satisfying the third principle of effective GUI, **simplicity of GUI.**The interface also includes pictures and pictorial representation where necessary, to grab the attention of the user. The stress level is indicated with colours that users can easily relate to and in the form of a circle displayed in the centre of the interface, which would be the component grabbing the user's attention compared to any other detail on the screen. Same applies to the exercise tab, where a representation of the routine being suggested is put up to help the user easily relate but also grab his attention. This covers the two aspects mentioned in the paper that would have the user's attention, **placement of texts and images and colours.** This paper has defined effective GUI as one in which the user would spend less time to earn and understand its functions, during co-operative feedback we did get the feedback that all icons looked familiar to the test supervisor and there was no difficulty to understand their probable functions. The tab icons were designed considering the functions and what was the probability that the user would recognising it, hence satisfying the first two principles of an effective GUI namely, **focus on users and their tasks instead of technologies, consider functions first presentation later.**

# *Flow in Games*

## Summary:

It is noticed that at all points of time it is not possible to satisfy all kinds of people, as the choices and perspective vary from person to person in every aspect. One such area is games; it is noticed that some section of user tends to find the interface more appealing than others. Flow theory in psychology helps in improving interactive experience. A common point of importance today in user-based user-oriented designs is to bring about positive feelings in the user. There are eight major components of flow based on research and personal observation of Mihaly Csikszentmihalyi as follows:

- A challenging activity requiring skill
- Merging of actions and awareness
- Clear goals
- Immediate feedback
- Concentration on the task at hand
- A sense of control
- A loss of self-consciousness
- An altered sense of time.

In order to maintain a user's flow experience, the activity must balance the challenge of the activity and the players ability to overcome it. Sometimes when the challenge cannot be overcome it can become overwhelming that it can cause anxiety. If the challenge is not engaging enough the user might lose interest. In conclusion, whatever be the scenario and requirement, designers must evaluate the activities presented to the user, based on the four-step methodology.

- Mix and match the components of Flow
- Keep the user's experience within the user's Flow Zone
- Offer flexible choices, allowing different users to enjoy the Flow in their own way
- Embed choices inside the core activities to ensure the Flow is never interrupted.

## Discussion:

It is necessary to keep the user engrossed and interested in the interface. And every user is a different, so it becomes important to keep the user interface simple and easy to understand and use. This makes exploring the interface on

their own, an activity driven by curiosity. In our final project the device interface is kept very easy and clear, which makes navigation and understanding a piece of cake for the user. No symbols have been used that would be confusing or unknown to the user. The navigation and screen placement is such that, the user never feels lost in it. He is always capable of going back to the first screen he saw, or any other screen he wants to, without having to memorize. This is also applicable to the application that goes along with the device. The reminder feature on the device allows the user to set any time and dosage of the medicine he wants to. As each individual is different, an option has been provided to modify the reminder as wanted by each user, well within the flow control of the device. The exercise feature is made visually attractive, and also simple to follow with respect to how the exercise routine is to be performed in order to achieve efficient results.