

**COMPUTER ENGINEERING DEPARTMENT**

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**HMI Assignment - 2**

<b>Sr. No.</b>	<b>Questions</b>
1	Explain the Gestalt Principle with examples.
2	Explain various factors affecting learning.
3	How will you choose an interacting device? Show that choosing a device will put any limitations on the systems.
4	Explain various Menu and Navigation schemes selection of window with example.
5	Show that proper colour choice while designing the GUI improves effectiveness of it.
6	How text messages are important to communicate with users explained with a few examples.

**Student Signature:**

Amey

Q1. Explain the Gestalt Principle with examples.

Ans:

### Gestalt Principle

- It is principle / laws of human perception that describe how humans group similar elements, recognize patterns and simplify complex images when we perceive objects. Designers use the principles to organize content on website and other interfaces so it is aesthetically pleasing and easy to understand.

#### Principles:

##### ① Proximity (Emergence)

- We group close-together elements, separating them from those ~~further~~ farther apart. So when you cluster individual elements into one area or group on your design, users will recognize it as one entity standing distinct from anything else on-screen.
- An example of proximity in design is the girl scouts logo with its three faces clustered in profile (two green, one white)

##### ② Similarity

- This principle states that we tend to group things that are similar together. When our mind makes these groups, we make similar assumptions about the group and all of the objects in it.
- It is interesting to see how this principle plays out when multiple similarities are present.

- For example, the game set asks you to find a set of cards of three cards. The cards has one of three shapes, one of three colours. The goal of the game is to find a set of cards that are either similar or all different in each area (shape, colour, number). It is easier to recognize cards that are the same colour. The real brainpower comes in when distinguishing numbers and shapes.

### ③ Continuity

- This principle speak to the idea that our mind categorizes elements to make things easier for ourselves. It's easier to recognize two groups of dots than it is to recognize 72 individual dots. But let's continue to talk about things that are "moving".
- This law argue that shapes, objects or design elements that are positioned in a way that suggests lines, curves or planes will be perceived as such and not as individual elements. We perceptually group the elements together to form a continuous image.

### ④ Common Region

- This law proposes that elements that are closed region such as inside a circle or a shape tend to be perceived as belonging to the same group.
- Those clearly defined boundaries between the inside and outside of a shape creates a stronger connection between elements and can even overpower the law of proximity or of similarity.

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### ⑤ Closure

- This law suggests that the human brain has a natural tendency to visually ~~change~~ close gaps in forms, particularly when identifying familiar images. When information is missing, our focus goes to what is present and automatically "fills" the missing parts with familiar lines, colours or patterns. Once a form has been identified, even if additional gaps are introduced we still tend to visually complete the form in order to make them stable.
- IBM's iconic logo is one example of applied closure - blue horizontal lines are arranged in three stacks that we "close" to form the letter forms (Graham 2008)

Q2. Explain various factors affecting learning.

Ans:

Factors affecting learnings

(1) Intellectual Factor

- The term refers to the individual mental level. Success in school is generally closely related to level of the intellect. Peoples with low intelligence often encounter serious difficulty in mastering schoolwork. Sometimes people do not learn because of special intellectual disabilities.

(2) Learning Factor

- Learning factor is another factor affecting learning.
- Factors owing to lack of memory of what has been taught, faculty methods of work or study or narrowness of experimental background may affect the learning process of any people. If the school proceeds too rapidly and does not constantly check up on the extent to which people is mastering what is being taught, the pupil accumulates a number of different people that interface with successful progress. Because of faculty instruction the people may have learnt inefficient method of study.

(3) Physical Factors

- Under this group are included such factors such as health, physical development, nutrition, visual and physical defects and glandular abnormality.
- It is generally recognized that ill health retards physical and motor development and malnutrition interferes with learning and physical growth.

## (4) Mental Factor

- Attitude falls under mental factor attitudes are made up of organic and kinesthetic elements. They are not to be confused with emotions that are characterized by internal visceral disturbances. Attitudes are more or less of definite sort. They play large part in the mental organization and general behaviour of the individual.

## (5) Emotional and social factors

- Personal factors such as instincts, emotional and social factors such as co-operation and rivalry are directly related to a complex psychology of motivation. It is a recognized fact that the various response of the individual to various kinds of stimuli are determined by a wide variety of tendencies.

Q3. How will you choose an interacting device? Show that choosing a device will put any limitations on the system.

Ans:

① Design must be goal - driven.

- One of the major practices of interaction design is that it is goal - driven design.
- Interaction designers therefore need to know how to build the customer insights into their design, regardless of whether or not they are personally conducting user research.

② It must be easy to use

- This is the base minimum for any product. If your product lacks usability, it is obvious that no one will desire it. It is the ease with which someone uses your product to achieve their desired goal.
- Just like UX design, interaction design needs to consider the inherent usability of the interface to make the underlying system to comprehend and use.

③ Keep an eye on signifiers and affordances

- It is important to focus on signifiers as well. Your website menu should look like a menu, otherwise it will leave your users confused. Follow the norm, without it users will find it difficult to perceive the affordance.

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④ The interface must be easily learned.

- You need to design intuition and familiarity into every interfaces as ~~as~~ users don't really remember all functions after using a product.
- In order to boil down complexity, you need to create consistency and predictability.
- A simple example is that when a designer uses a lightbox for some images and have others opening in a new tab. This breaks both consistency and predictability and would only confuse users, it not annoying them. You need to maintain consistency throughout the design to create predictability which in turn improves learnability.

Q4. Explain various menu and navigation schemes selection of windows with example.

Ans:

Navigation schemes:

① Navigation Goals

- A well designed navigation system facilitates quick and easy navigation between components whose structure and relationship are easily comprehensible
- For the user, answers to the following questions must be obvious at all times during an interaction:
  - Where am I now?
  - Where did I come from?
  - Where can I go from here?
  - How can I get there quickly?
- General system navigation guidelines includes the following control

Menu Navigation

② Website Navigation

- In designing a website navigation schemes there are two things to take in.

(a) Consideration

- Never assume that users knows everything.

(b) Website Navigation Design includes

- Website organization divide content into logical fragments units or chunks.

## Selection of Window

### Window characteristics:

- A name or title, allowing it to be identified.
- A size in height and width (which can vary)
- A state accessible or active or not accessible
- Visibility - The portion can be seen
- The function, task or application to which it is dedicated.

### ① Attraction of windows

- Presentation of different levels of information
- Presentation of multiple kinds of information.
- Sequential presentation of levels or kinds of information

### ② Constraint in window system design

- Historical considerations
- Hardware Limitations
- Human Limitations

### ③ Windows management

- Single - document interface
- Multiple - document interface

### ④ Organizing window Functions

- Window organization - organize windows to support user tasks
- Number of Windows - minimize the number of windows needed to accomplish an objective

### ⑤ Windows Operations

- Active window
- Sizing windows
- Opening a window
- Window placement

Q5. Show that proper colour choice while designing the GUI improves effectiveness of it.

Ans:

(1) The magic power of colour

- Colour can speak as powerful as language. Think back whenever you encounter a site or a product, it is the visual appearance which largely depends on colour, that always leaves you the first impression. So, what colours can do actually?

(a) Reflect the personality of a brand

- Colour can set the basic tone, mood, connection and conception of a brand or a product.

(b) Achieve better user experience

- The right choice of colour can support better readability of the information. Beside, it can increase usability sharply such as strengthen call to action, enhance navigation, stimulate intuitive interactions, satisfy aesthetic needs and visual solutions.

(c) Influence the purchasing decision

- According to metrics, the visual appearance of a product is the key factor influencing customers purchasing decision.

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## ② Fundamental concepts about colours

- Each colour has formed its unique meaning and connotation in the long run of human life.

Read the meaning of each language.

## ③ Tools and Templates

- Tools and anything that can be useful can make things much easier. Here are some best UI design tools for choosing colour patterns.

① Colours.co

⑥ Palleton

Q6. How text messages are important to communicate with users. Explain with few examples

Ans:

- Messages are communication provided on the screen to the screen viewer.
- Screen messages fall into two broad categories: System and instructional. System messages are generated by the system's to keep the user informed of the system's state and activities. They are customarily presented within message boxes.
- They reflect the system state as it exist at that moment in time. Instructional messages, sometimes referred to as prompting messages are messages that tell the user how to work with or complete the screen displayed. They may be provided in message boxes and also within the screen itself.

Common message types are:

① Status message:

- It is used for providing information concerning the progress of a lengthy operation and a short message describing the kind of operation being performed. Pause and Resume buttons may also be included.

## (2) Information Message

- It is also called notification messages provide information about the state of the system. When it is not immediately obvious to the user. They may confirm that non-obvious proceeding is taking place or is completed. They may also be used to provide intermediate feedback when normal feedback is delayed.

## (3) Warning message.

- This is another type of message. Warning messages call attention to a situation that may be undesirable. They are usually identified by an '!' icon to the left of a message.

The user must determine whether the situation is in fact a problem and may be asked to advise the system whether or not to proceed.

A deletion request by a user is an action that commonly generates a warning message.

## (4) Critical message

- Sometimes called action message, call attention to conditions that require a user action before the system can proceed. A message describing an erroneous situation is usually presented as a critical message.