



Software Engineering

هندسة البرمجيات

جامعة بغداد

كلية التربية للعلوم الصرفة/ابن

الهيثم

قسم علوم الحاسبات

المرحلة الثالثة

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Graphical User Interface (GUI)

Topics covered



- ✧ Graphical User Interface (GUI)
- ✧ GUI Elements
- ✧ Application Specific GUI Components

Software Interface Design



- ✧ **Software Interface Design (UI):** User interface is the front-end application view to which user interacts in order to use the software. User can manipulate and control the software as well as hardware by means of user interface. Today, user interface is found at almost every place where digital technology exists, right from computers, mobile phones, cars, music players, airplanes, ships etc.
- ✧ **User interface** is part of software and is designed in such a way that it is expected to provide the user insight of the software. UI provides fundamental platform for human-computer interaction.
- ✧ UI can be **graphical, text-based, audio-video based**, depending upon the underlying hardware and software combination. UI can be hardware or software or a combination of both.

More Popular Software Interface



The software becomes more popular if its user interface is:

- ✧ Attractive
- ✧ Simple to use
- ✧ Responsive in short time
- ✧ Clear to understand
- ✧ Consistent on all interfacing screens

Graphical User Interface



- ✧ **Graphical User Interface (GUI)** provides the user graphical means to interact with the system. GUI can be combination of both hardware and software. Using GUI, user interprets the software.
- ✧ Typically, GUI is more resource consuming than that of CLI. With advancing technology, the programmers and designers create complex GUI designs that work with more **efficiency, accuracy, and speed.**

GUI Elements



- ✧ **GUI** provides a set of components to interact with software or hardware.
- ✧ **Every graphical component** provides a way to work with the system. A GUI system has following elements such as windows

GUI Elements



- **Window** - An area where contents of application are displayed. Contents in a window can be displayed in the form of icons or lists, if the window represents file structure. It is easier for a user to navigate in the file system in an exploring window. Windows can be minimized, resized or maximized to the size of screen. They can be moved anywhere on the screen. A window may contain another window of the same application, called child window.



Figure 36: GUI Elements

GUI Elements



- **Tabs** - If an application allows executing multiple instances of itself, they appear on the screen as separate windows. **Tabbed Document Interface** has come up to open multiple documents in the same window. This interface also helps in viewing preference panel in application. All modern web-browsers use this feature.

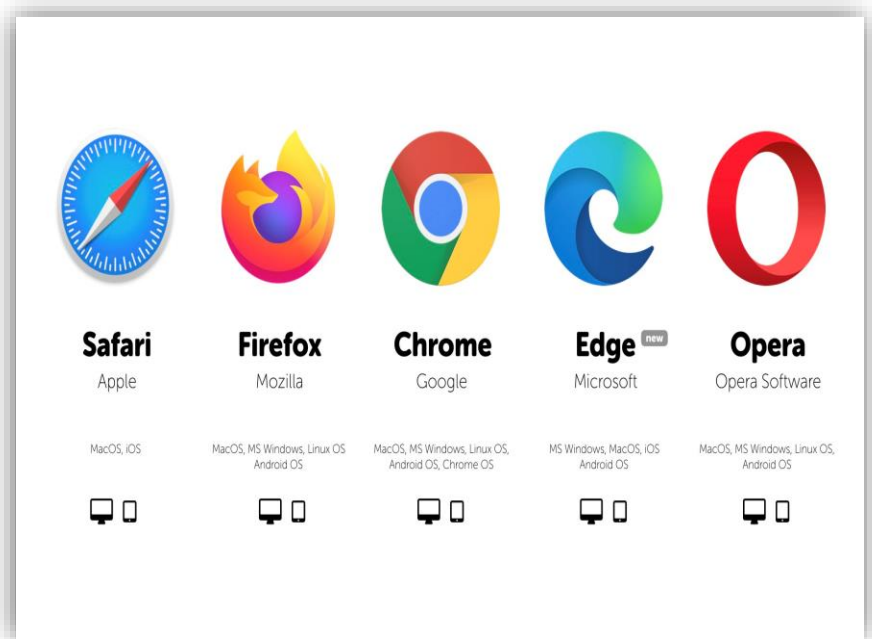


Figure 37: GUI Elements

GUI Elements



- **Menu** - Menu is an array of standard commands, grouped together and placed at a visible place (usually top) inside the application window. The menu can be programmed to appear or hide on mouse clicks.

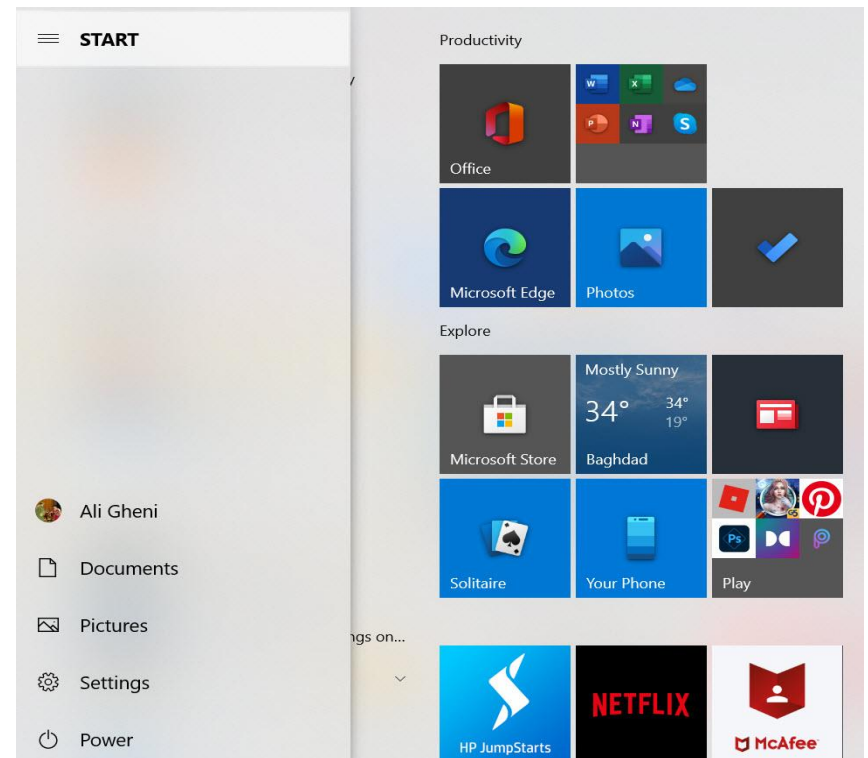


Figure 38: GUI Elements

GUI Elements



- **Icon** - An icon is small picture representing an associated application. When these icons are clicked or double clicked, the application window is opened. Icon displays application and programs installed on a system in the form of small pictures.

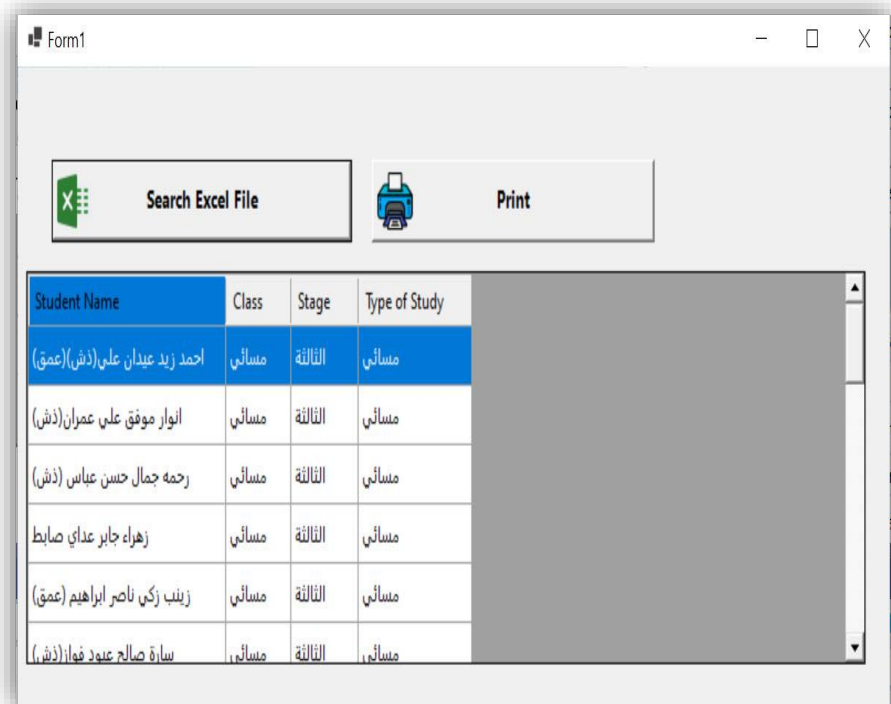


Figure 39: GUI Elements

GUI Elements



- **Cursor** - Interacting devices such as mouse, touch pad, digital pen are represented in GUI as cursors. On screen cursor follows the instructions from hardware in almost real-time. Cursors are also named pointers in GUI systems. They are used to select menus, windows and other application features.



Figure 40: GUI Elements

Question???

As a software Designer, find out the main reasons of why Nokia failed?





Thanks