



INTRODUCTION TO GRAPHICAL USER INTERFACE (GUI) IN JAVA

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WHY GUI?

EXAMPLE: IRC VS DISCORD

```
11:37:58 <Lamb> hello guys
11:38:04 <Lamb> Can somebody help me install tor on ubuntu 13.04 64bit?
11:39:17 -!- applepie [-applepie@192.3783221.net] has joined #ubuntu
11:39:24 -!- nightdrewer [-nightdrew@host-92-25-192-77.as13295.net] has joined #ubuntu
11:39:27 <Lamb> nightdrewer: I think the recommended way to use tor right now is to use the tor browser.
11:39:38 <nightdrewer> w: Failed to fetch http://archive.getdeb.net/ubuntu/dists/precise/getdeb/pwasa/110n/translation-go Unable to connect to s
140.181.116.236 80
11:39:38 <nightdrewer> ????
11:39:32 -!- <Kludge> [-comet@unaffiliated/esp1rall] has joined #ubuntu
11:39:33 -!- <bulllion> [-bulllion@host-92-25-21-228.as13295.net] has joined #ubuntu
11:39:52 -!- <backwards> [-backwards@78.114.206.24] has quit [Quit: Leaving]
11:39:55 -!- <luo_2> [-luo@5448077A.dig0.t-ipcconnect.de] has joined #ubuntu
11:40:19 <Karp44> Lamb: why just don't install Tails on your USB drive or second partition?
11:40:35 -!- <wrdab> [4257523ad@gateway/web/freenode/ip.66.87.82.58] has joined #ubuntu
11:41:29 <Lamb> hah this is first time I hear something about Tails but for now I want to use Tor
11:41:35 -!- <lanj> [-lanj@host86-155-25-97.range86-155.btcentralplus.com] has joined #ubuntu
11:41:38 <Lamb> I got error message in a console
11:41:46 <Lamb> for ownership and dont know how to fix it
11:41:49 <Karp44> Lamb: It is a system based on debian but it's generally for Tor users.
11:41:55 -!- <weebey> [weebey@2901:678:908:87d:c57b:f3:c892:a46f] has joined #ubuntu
11:42:00 -!- <wee444> [-wee444@122-57-218-211.jetstream.sra.co.nz] has quit [Remote host closed the connection]
11:42:10 -!- <Axling> [-Axling@252.142-205-66.ftth.subr.surewest.net] has quit [Quit: Leaving]
11:42:13 <Karp44> Lamb: it is recommended to use tails when using Tor.
11:42:13 <weebey> Lamb: https://www.internicet.org/download/download.aspx.html.en#linux
11:42:38 -!- <Dr-Willis> [-Dr-Willis@mobile-166-147-181-089.mycingular.net] has quit [Quit: WeeChat 0.4.1]
11:42:48 <Lamb> weebey I got it from this link
11:42:53 <Lamb> but
11:43:00 <Lamb> no idea how to install from archive
11:43:01 <Lamb> is new
```



Google Cloud Platform Teaching

Create an instance

To create a VM instance, select one of the options:

- New VM instance**
Create a single VM instance from scratch
- New VM instance from template**
Create a single VM instance from an existing template
- Marketplace**
Deploy a ready-to-go solution onto a VM instance

Name
instance-1

Region
us-east1 (South Carolina)

Zone
us-east1-b

Machine type
Customize to select cores, memory and GPUs.
1 vCPU 3.75 GB memory [Customize](#)

Container
☐ Deploy a container image to this VM instance. [Learn more](#)

Boot disk
New 10 GB standard persistent disk
Image
Debian GNU/Linux 9 (stretch) [Change](#)

Identity and API access
Service account
Compute Engine default service account

Access scopes
☒ Allow default access
☐ Allow full access to all Cloud APIs
☐ Set access for each API

\$24.67 monthly estimate
That's about \$0.034 hourly
Pay for what you use: No upfront costs and per second billing
[Details](#)

```
gcloud compute --project=teaching-232804 instances create instance-1 --zone=us-east1-b --machine-type=n1-standard-1 --subnet=default --network-tier=PREMIUM --maintenance-policy=MIGRATE --service-account=342401582046-compute@developer.gserviceaccount.com --scopes=https://www.googleapis.com/auth/devstorage.read_only,https://www.googleapis.com/auth/logging.write,https://www.googleapis.com/auth/monitoring.write,https://www.googleapis.com/auth/servicecontrol,https://www.googleapis.com/auth/service.management.readonly,https://www.googleapis.com/auth/trace.append --image=debian-9-stretch-v20190326 --image-project=debian-cloud --boot-disk-size=10GB --boot-disk-type=pd-standard --boot-disk-device-name=instance-1
```

EXAMPLE #2: COMMAND LINE VS WEB CONSOLE

Windows PowerShell

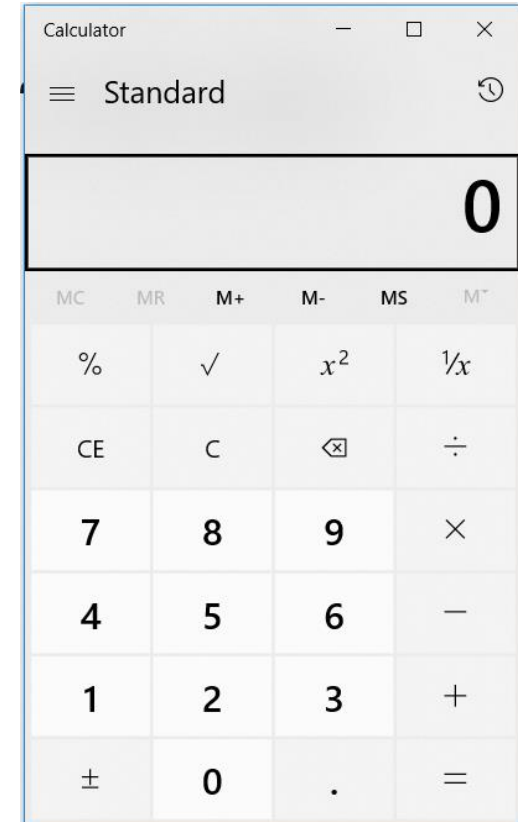
Windows PowerShell

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PS C:\Users\angkul> 16/5

3.2

PS C:\Users\angkul>



EXAMPLE #3: COMMAND LINE CALCULATOR VS CALCULATOR APP

User Experience Designer Salaries

6,482 Salaries Updated Apr 19, 2019

About This Data ?

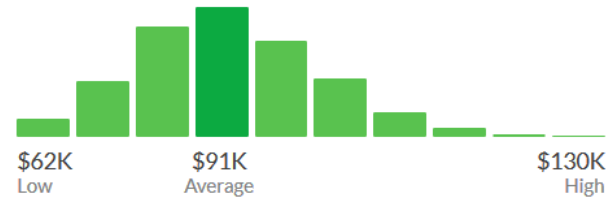
Industries ▾

Company Sizes ▾

Years of Experience ▾

Average Base Pay

\$90,697 /yr



Additional Cash Compensation ?

Average \$7,384

Range \$1,704 - \$18,589

How much does a User Experience Designer make?
The national average salary for a User Experience Designer is \$90,697 in United States. Filter by location... [More](#)

Salaries for Related Job Titles

Associate User Experience Des...	\$82K
UI Designer	\$80K
User Experience Architect	\$98K
User Experience Researcher	\$93K
Interaction Designer	\$88K



GUI: UI/UX CAREERS

GUI DESIGN

Know the user

- User's true needs
- User's common activities
- User's level of expertise
- Each user is different
- To user, GUI is a program

Prevent User Errors

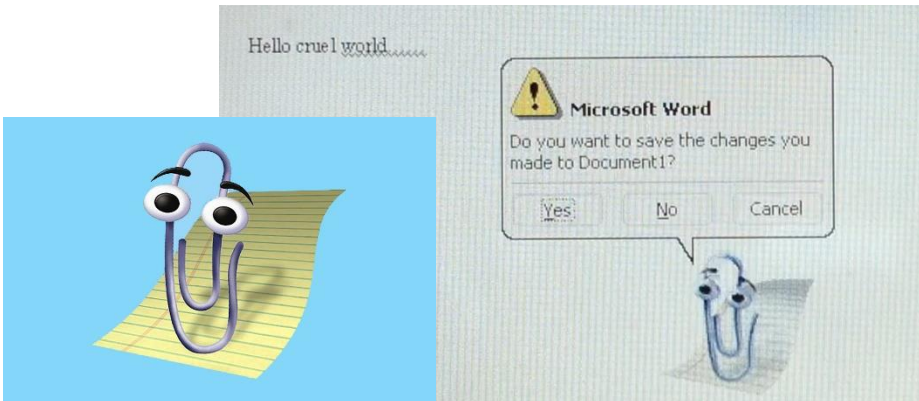
- Minimalist and specific features
- Provide feedback on errors

Optimize User Actions/Abilities

- “Helper” to walk beginner through steps
- “Shortcut” for expert/power users

Be Consistent

- Users get used to action/interaction
- Users get used to layout/color scheme



JAVA API FOR GUI

Abstract Window Toolkit (AWT)

```
import java.awt.*;
```

Swing

```
import javax.swing.*;
```

~~JavaFX (JRE 8)~~

```
import javafx.*;
```

MAIN WINDOW — JFRAME VS JWINDOW

```
import javax.swing.*;

public class Demo0 {

    public static void main(String[] args) {

        JFrame f = new JFrame("The Frame");

        f.setSize(300, 300);    f.setLocation(100, 100);

        JWindow w = new JWindow();

        w.setSize(300, 300);    w.setLocation(500, 100);

        f.setVisible(true);    w.setVisible(true);

    }

}
```


MAIN WINDOW — JFRAME EXIT ON CLOSE

```
import javax.swing.*;

public class Demo1 {

    public static void main(String[] args) {

        JFrame f = new JFrame("The Frame");

        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        f.setSize(300, 300);

        f.setLocation(100, 100);

        f.setVisible(true);

    }

}
```

MAIN WINDOW — JWINDOW CLOSE BUTTON

```
import javax.swing.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class Demo2 {
    public static void main(String[] args) {
        JWindow w = new JWindow();
        JButton b = new JButton("Close");
        b.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {System.exit(0);}
        });
        w.add(b);
        w.setSize(300, 300);
        w.setLocation(500, 100);
        w.setVisible(true);
    }
}
```

PANELS AND LAYOUTS

//Creating a Panel

```
JPanel panel = new JPanel();
```

//Setting Panel Background Color

```
panel.setBackground(Color.BLUE);
```

//Setting Panel to use Flow Layout

```
panel.setLayout(new FlowLayout());
```

//Setting Panel to use Border Layout

```
panel.setLayout(new BorderLayout());
```

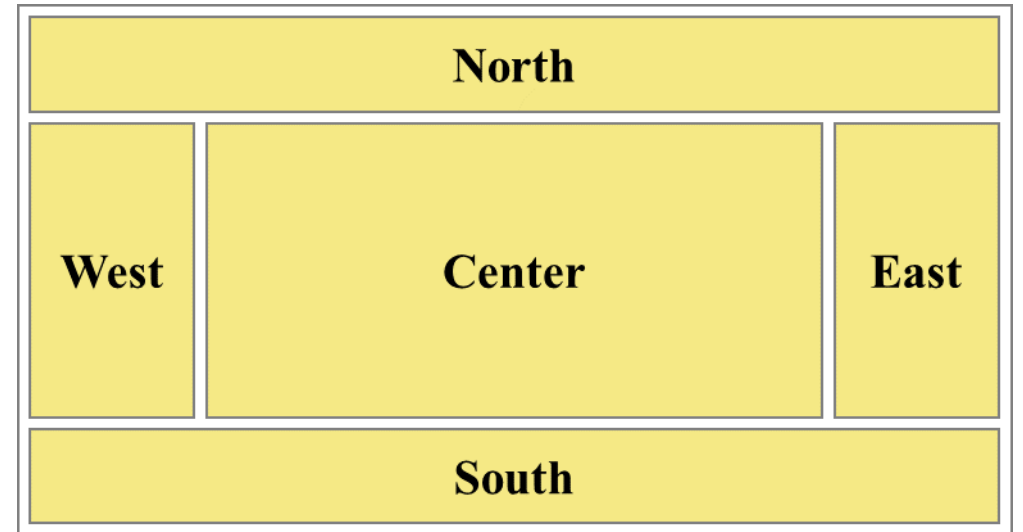
```
panel.add(b, BorderLayout.EAST);
```

//Setting Panel to use Grid Layout

```
panel.setLayout(new GridLayout(2, 3));
```

//Adding Panel to Main Window

```
w.add(panel, BorderLayout.SOUTH);
```



TEXTBOX USING JTEXTFIELD

```
//Creating JTextField
```

```
JTextField textbox = new JTextField();
```

```
//Setting the Alignment of Displayed Text (Default is left justified)
```

```
textbox.setHorizontalAlignment(JTextField.RIGHT);
```

```
//Setting the Font of Displayed Text (Default font size is small)
```

```
textbox.setFont(new Font("Consolas", Font.BOLD, 40));
```

```
//Setting the Value of Displayed Text
```

```
textbox.setText("HELLO");
```

```
//Adding the Textbox to Main Window (using Border Layout in this example)
```

```
w.add(textbox, BorderLayout.NORTH);
```

PUTTING IT ALL TOGETHER

