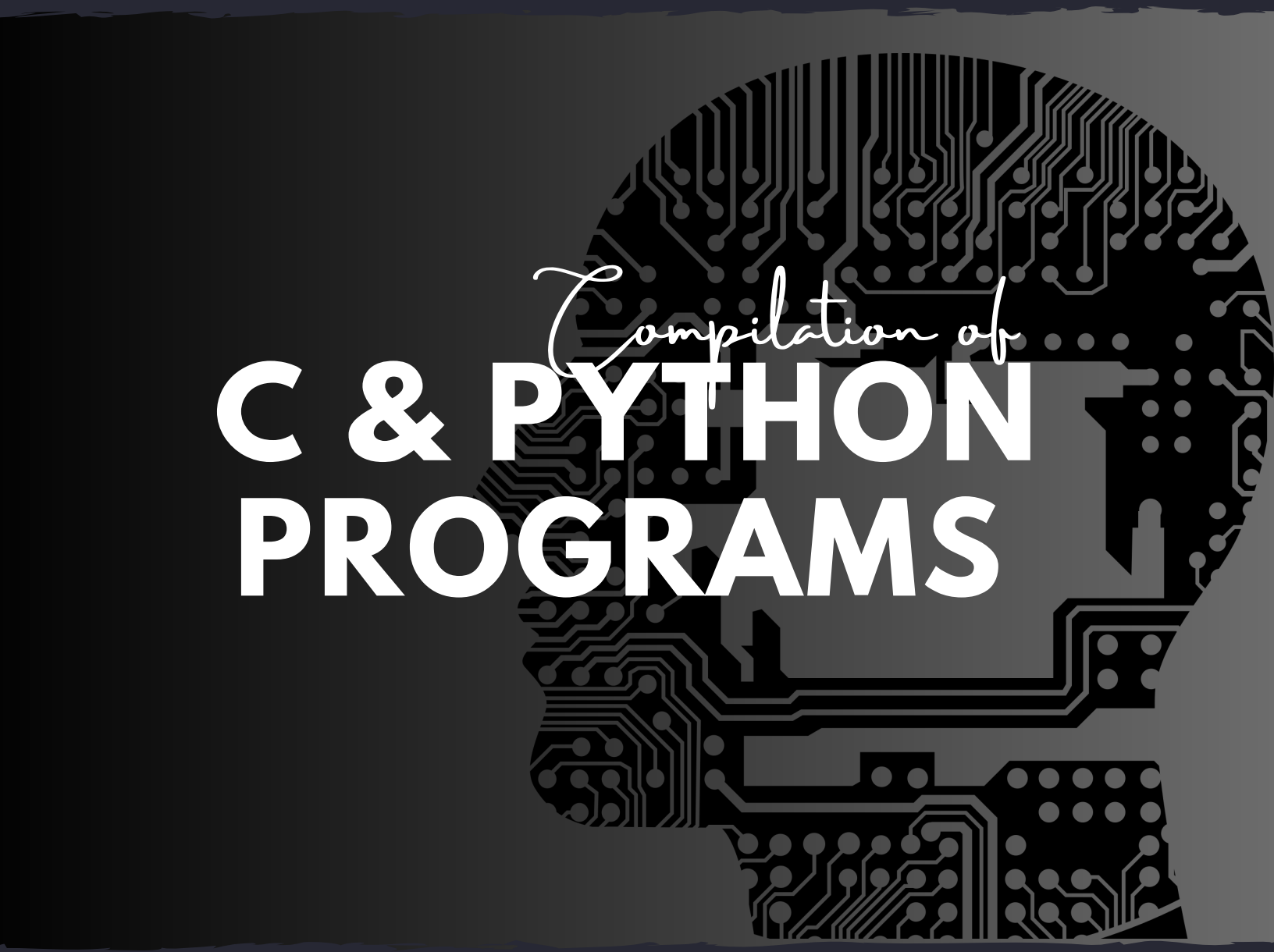

Compilation of

C & PYTHON PROGRAMS

COMPUTER PROGRAMMING 2

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BSIT 1-1

POLYTECHNIC UNIVERSITY OF THE PHILIPPINES CALAUAN, LAGUNA CAMPUS

“20 Problems and Solutions”
into
-C PROGRAMMING LANGUAGE
-PYTHON PROGRAMMING LANGUAGE

2nd Semester Final Project
Computer Programming 2

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Instructor

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Signmon’s Code

Lhea’s Code

Dexilou’s Code

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Outputs

Presentation of collatz conjecture

-In C Language

```
#include <stdio.h>
#include <stdlib.h>

int main() {

 int n;

 printf("Presentation of collatz conjecture\n");
 printf("Summary: if a number is even, divide by 2\n");
 printf("if a number is odd, multiply by 3 then add 1\n");
 printf("The last number is always 1\n\n");

 printf("enter a number: ");
 scanf("%d", &n);

system("clear");

printf("Presentation of collatz conjecture for %d:\n",n);
 while ( n != 1){
 printf("%d\n", n);
 if ( n % 2 == 0){
 n = n / 2;
 } else {
 n = 3 * n + 1;
 }
 }
 printf("1\n");

 return 0;
}
```

Presentation of collatz conjecture

-In Python Language

```
import os

print("Presentation of collatz conjecture")
print("Summary: if a number is even, divide by 2")
print("if a number is odd, multiply by 3 then add 1")
print("The last number is always 1\n")

n = int(input("enter a number: "))
os.system("clear")

print(f"Presentation of collatz conjecture for {n}:")
while n != 1:
    print(n)
    if n % 2 == 0:
        n = n // 2
    else:
        n = 3 * n + 1

print(1)
```

Divisible Finder and Prime Number Detector

In C Language

```
#include <stdio.h>
#include <stdlib.h>

int isDivisible(int num, int divisor) {
    return num % divisor == 0;
}

int isPrime(int num) {
    if (num <= 1) {
        return 0;
    }
    for (int i = 2; i <= num / 2; i++) {
        if (num % i == 0) {
            return 0;
        }
    }
    return 1;
}

int main(){

while(1){
    int number, divisor;
    printf("Divisible Finder and Prime Number Detector\n");
    printf("Enter a number: ");
    scanf("%d", &number);

    printf("Enter a divisor: ");
    scanf("%d", &divisor);

    system("clear");

    if (isDivisible(number, divisor)) {
        printf("%d is divisible by %d\n", number, divisor);
    } else {
        printf("%d is not divisible by %d\n", number, divisor);
    }

    if (isPrime(number)) {
        printf("%d is a prime number\n", number);
    } else {
        printf("%d is not a prime number\n", number);
    }
```

```
    char restart;
        printf("do you want to restart[Y]/[N]: ");
        scanf(" %c", &restart);
        if (restart == 'Y' || restart == 'y') {
            system("clear");
            continue;
        } else {
            break;
    }
}
    return 0;
}
```

Divisible Finder and Prime Number Detector

-In Python Language

```
import os

def is_divisible(num, divisor):
    return num % divisor == 0

def is_prime(num):
    if num <= 1:
        return False
    for i in range(2, num // 2 + 1):
        if num % i == 0:
            return False
    return True

while True:
    print("Divisible Finder and Prime Number Detector")
    number = int(input("Enter a number: "))
    divisor = int(input("Enter a divisor: "))

os.system("clear")

if is_divisible(number, divisor):
        print(number ,"is divisible by", divisor)
else:
        print(number ,"is not divisible by", divisor)

if is_prime(number):
    print(number, "is a prime number")
else:
    print(number, "is not a prime number")

    restart = str(input("do you want to restart[Y]/[N]: "))
    if restart == 'Y' or restart == 'y':
        os.system("clear")
        continue
    else:
        break
```

GWA Calculator

-In C Language

```
#include <stdio.h>
#include <stdlib.h>

int main() {
    int numSubjects, totalUnits = 0;
    float grade, units, totalGrade = 0, gwa;

    while (1) {
      float totalGrade = 0;
      int totalUnits = 0;
        printf("WELCOME TO GWA CALCULATOR");
        printf("Enter the number of subjects: ");
        scanf("%d", &numSubjects);

        system("clear");

        for (int i = 1; i <= numSubjects; i++) {
            printf("Enter the grade for subject %d: ", i);
            scanf("%f", &grade);

            printf("Enter the number of units for subject %d: ", i);
            scanf("%f", &units);

            system("clear");

            totalGrade += grade * units;
            totalUnits += units;
        }

        gwa = totalGrade / totalUnits;
        printf("Your GWA is: %.2f\n", gwa);
        if(gwa >= 5){
            printf("you are indeed failed");
        }
        else if (gwa <= 1){
            printf("Invalid GWA");
        }
        else{
            printf("you passed\n");
        }

        char restart;
        printf("do you want to restart[Y]/[N]: ");
        scanf(" %c", &restart);
        if (restart == 'Y' || restart == 'y') {
            system("clear");
            continue;
        } else {
            break;
        }
    }

    return 0;
}
```

GWA Calculator

-In Python Language

```
import os

while True:
    totalGrade = 0
    totalUnits = 0

    print("WELCOME TO GWA CALCULATOR")
    numSubjects = int(input("Enter the number of subjects: "))

    os.system('clear')

    for i in range(1, numSubjects + 1):
        grade = float(input(f"Enter the grade for subject {i}: "))
        units = float(input(f"Enter the number of units for subject {i}: "))

        os.system('clear')

        totalGrade += grade * units
        totalUnits += units

    gwa = totalGrade / totalUnits
    print(f"Your GWA is: {gwa:.2f}")
    if gwa >= 5:
        printf("You are indeed failed")
    elif gwa <= 1:
        printf("Invalid GWA")
    else:
        printf("you passed")

    restart = str(input("do you want to restart[Y]/[N]: "))
    if restart == 'Y' or restart == 'y':
        os.system("clear")
        continue
    else:
        break
```

Encryption and Decryption for caesar cipher

-In C Language

```
#include <stdio.h>
#include <stdlib.h>

void encrypt(char text[], int shift) {
    for (int i = 0; text[i] != '\0'; i++) {
        if (text[i] >= 'a' && text[i] <= 'z') {
            text[i] = (text[i] - 'a' + shift) % 26 + 'a';
        } else if (text[i] >= 'A' && text[i] <= 'Z') {
            text[i] = (text[i] - 'A' + shift) % 26 + 'A';
        }
    }
    printf("Encrypted text: %s\n", text);
}

void decrypt(char text[], int shift) {
    for (int i = 0; text[i] != '\0'; i++) {
        if (text[i] >= 'a' && text[i] <= 'z') {
            text[i] = (text[i] - 'a' - shift + 26) % 26 + 'a';
        } else if (text[i] >= 'A' && text[i] <= 'Z') {
            text[i] = (text[i] - 'A' - shift + 26) % 26 + 'A';
        }
    }
    printf("Decrypted text: %s\n", text);
}


int main() {
    char text[250];
    int shift;

while(1){
    printf("Welcome to Caesar Cipher\n");
    printf("Enter text to encrypt: ");
    scanf(" %[^\n]s", text);

    printf("Enter shift value: ");
    scanf("%d", &shift);

    system("clear");
    encrypt(text, shift);
    decrypt(text, shift);
```

```
    char restart;
    printf("do you want to restart[Y]/[N]: ");
    scanf(" %c", &restart);
    if (restart == 'Y' || restart == 'y') {
    system("clear");
    continue;
    } else {
    break;
        }
}
    return 0;
}
```

Encryption and Decryption for caesar cipher

-In Python Language

```
import os
def encrypt(text, shift):
    encrypted_text = ""
    for char in text:
        if char.isalpha():
            if char.islower():
                encrypted_text += chr((ord(char) - ord('a') + shift) % 26 + ord('a'))
            elif char.isupper():
                encrypted_text += chr((ord(char) - ord('A') + shift) % 26 + ord('A'))
        else:
            encrypted_text += char
    print("Encrypted text:", encrypted_text)

def decrypt(text, shift):
    decrypted_text = ""
    for char in text:
        if char.isalpha():
            if char.islower():
                    decrypted_text += chr((ord(char) - ord('a') - shift + 26) % 26 +
ord('a'))
            elif char.isupper():
                    decrypted_text += chr((ord(char) - ord('A') - shift + 26) % 26 +
ord('A'))
        else:
            decrypted_text += char
    print("Decrypted text:", decrypted_text)

while True:
    print("Welcome to Caesar Cipher")
    text = input("Enter text to encrypt: ")
    shift = int(input("Enter shift value: "))

    os.system("clear")

    encrypt(text, shift)
    decrypt(text, shift)

    restart = str(input("do you want to restart[Y]/[N]: "))
    if restart == 'Y' or restart == 'y':
        os.system("clear")
        continue
    else:
        break
```

Boyle's Law Calculator

-In C Language

```
#include <stdio.h>
#include <stdlib.h>

// Boyle's Law Calculator Function
float initial_P(float fPressure, float iVolume, float fVolume) {
    return (fPressure * fVolume) / iVolume;
}
float initial_V(float iPressure,float fPressure,float fVolume){
    return (fPressure * fVolume) / iPressure;
}
float final_P(float iPressure,float iVolume,float fVolume){
    return(iPressure * iVolume) / fVolume;
}

float final_V(float iPressure,float iVolume,float fPressure){
    return(iPressure * iVolume) / fPressure;
}
int main() {
    int option1, option;
    float iPressure, fPressure, iVolume, fVolume;
while(1){
    printf("THIS IS Boyle\'s Law Calculator\n");
    printf("Note: Formula for Boyle\'s Law is P1 * V1 = P2 * V2\n");
         printf("What  is  missing:\n[1]Initial  Pressure\n[2]Initial  Volume\n[3]Final
Pressure\n[4]Final Volume");
    printf("\nSelect: ");
    scanf("%d",&option);

      if(option == 1){
    printf("\nEnter initial volume: ");
    scanf("%f", &iVolume);
    printf("Enter final pressure: ");
    scanf("%f", &fPressure);
    printf("Enter final volume: ");
    scanf("%f", &fVolume);
    float ip = initial_P(fPressure, iVolume, fVolume);
    system("clear");
    printf("The Initial Pressure is %f atm",ip);
      }
      else if(option == 2){
    printf("\nEnter initial pressure: ");
    scanf("%f", &iPressure);
    printf("Enter final pressure: ");
    scanf("%f", &iVolume);
    printf("Enter final volume: ");
    scanf("%f", &fVolume);
```

```
    float iv = initial_V( iPressure, fPressure, fVolume);
    system("clear");
    printf("The Initial Volume is %f L",iv);
      }
       else if(option == 3){
    printf("\nEnter initial pressure: ");
    scanf("%f", &iPressure);
    printf("Enter initial volume: ");
    scanf("%f", &iVolume);
    printf("Enter final volume: ");
    scanf("%f", &fVolume);
    float fp = final_P( iPressure, iVolume, fVolume);
    system("clear");
    printf("The Final Pressure is %f atm",fp);
      }
      else if(option == 4){
    printf("\nEnter initial pressure: ");
    scanf("%f", &iPressure);
    printf("Enter initial volume: ");
    scanf("%f", &iVolume);
    printf("Enter final pressure: ");
    scanf("%f", &fPressure);
    float fp = final_V( iPressure, iVolume, fPressure);
    system("clear");
    printf("The Final Volume is %f L",fp);
      }
    else {
        printf("wrong input");
    }
char restart;
    printf("\n\ndo you want to restart[Y]/[N]: ");
    scanf(" %c", &restart);
    if (restart == 'Y' || restart == 'y') {
    system("clear");
    continue;
    }
    else {
    break;
}
}
return 0;
}
```

Boyle's Law Calculator

-In Python Language

```
import os

# Boyle's Law Calculator Function
def initial_P(fPressure, iVolume, fVolume):
    return (fPressure * fVolume) / iVolume

def initial_V(iPressure, fPressure, fVolume):
    return (fPressure * fVolume) / iPressure

def final_P(iPressure, iVolume, fVolume):
    return (iPressure * iVolume) / fVolume

def final_V(iPressure, iVolume, fPressure):
    return (iPressure * iVolume) / fPressure

while True:
    option = int(input("THIS IS Boyle's Law Calculator\n"
                       "Note: Formula for Boyle's Law is P1 * V1 = P2 * V2\n"
                       "What is missing:\n"
                       "[1]Initial Pressure\n"
                       "[2]Initial Volume\n"
                       "[3]Final Pressure\n"
                       "[4]Final Volume\n"
                       "Select: "))

    if option == 1:
        iVolume = float(input("\nEnter initial volume: "))
        fPressure = float(input("Enter final pressure: "))
        fVolume = float(input("Enter final volume: "))
        ip = initial_P(fPressure, iVolume, fVolume)
        os.system('clear')
        print("The Initial Pressure is", ip, "atm")
    elif option == 2:
        iPressure = float(input("\nEnter initial pressure: "))
        fPressure = float(input("Enter final pressure: "))
        fVolume = float(input("Enter final volume: "))
        iv = initial_V(iPressure, fPressure, fVolume)
        os.system('clear')
        print("The Initial Volume is", iv, "L")
    elif option == 3:
        iPressure = float(input("\nEnter initial pressure: "))
        iVolume = float(input("Enter initial volume: "))
        fVolume = float(input("Enter final volume: "))
        fp = final_P(iPressure, iVolume, fVolume)
        os.system('clear')
        print("The Final Pressure is", fp, "atm")
```

```
elif option == 4:
    iPressure = float(input("\nEnter initial pressure: "))
    iVolume = float(input("Enter initial volume: "))
    fPressure = float(input("Enter final pressure: "))
    fv = final_V(iPressure, iVolume, fPressure)
    os.system('clear')
    print("The Final Volume is", fv, "L")
else:
    print("Wrong input")

restart = str(input("\nDo you want to restart[Y]/[N]: "))
if restart == 'Y' or restart == 'y':
    os.system("clear")
    continue
else:
    break
```

Kinetic and Potential Energy Calculator

-In C Language

```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

void KE(){
    printf("WELCOME TO KINETIC ENERGY CALCULATOR\n");
}
void PE(){
    printf("WELCOME TO POTENTIAL ENERGY CALCULATOR\n");
}

int main(){
    double mass, velocity, height, kinetic_energy, potential_energy;
    int choice, option;
    float gravity = 9.8;

while(1){
printf("SELECT CALCULATOR:\n1.Kinetic Energy\n2.Potential Energy\n");
printf("Select: ");
scanf("%d",&choice);
system("clear");

if (choice == 1){
    printf("THIS IS Kinetic Energy Calculator\n");
    printf("Note: Formula for Kinetic Energy is 0.5 * mass * velocity * velocity\n");
    printf("What is missing:\n[1]Kinetic Energy\n[2]Mass\n[3]Velocity\n");
    printf("\nSelect: ");
    scanf("%d",&option);
    system("clear");

        if(option == 1){
        KE();
        printf("\nEnter mass(kg): ");
        scanf("%lf", &mass);
        printf("Enter velocity(m/s): ");
        scanf("%lf", &velocity);
        system("clear");
        kinetic_energy = 0.5 * mass * velocity * velocity;
        printf("Kinetic Energy is %lf Joules",kinetic_energy);
        }
        else if(option == 2){
        KE();
        printf("\nEnter Kinetic Energy(Joules): ");
        scanf("%lf", &kinetic_energy);
        printf("Enter velocity(m/s): ");
        scanf("%lf", &velocity);
        system("clear");
        mass = 0.5 * (velocity * velocity) / kinetic_energy;
```

```
        printf("mass is %lf kg",mass);
        }
        else if(option == 3){
        KE();
        printf("\nEnter Kinetic Energy(Joules): ");
        scanf("%lf", &kinetic_energy);
        printf("Enter mass(kg): ");
        scanf("%lf", &mass);
        system("clear");
        velocity = 0.5 * mass / kinetic_energy;
        double fvelocity = sqrt(velocity);
        printf("velocity is %lf m/s",fvelocity);
        }
}

else if (choice == 2){
    printf("THIS IS Potential Energy Calculator\n");
      printf("Note: Formula for Potential Energy is mass * gravitational constant *
height\n");
    printf("What is missing:\n[1]Potential Energy\n[2]Mass\n[3]height\n");
    printf("\nSelect: ");
    scanf("%d",&option);
    system("clear");

        if(option == 1){
        PE();
        printf("\nEnter mass(kg): ");
        scanf("%lf", &mass);
        printf("Enter height(m): ");
        scanf("%lf", &height);
        system("clear");
        potential_energy = mass * gravity * height;
        printf("Potential Energy is %lf Joules",potential_energy);
        }
        else if(option == 2){
        PE();
        printf("\nEnter Potential Energy(Joules): ");
        scanf("%lf", &potential_energy);
        printf("Enter height(m): ");
        scanf("%lf", &height);
        system("clear");
        mass = gravity * height / potential_energy;
        printf("mass is %lf kg", mass);
        }
```

```
        else if(option == 3){
        PE();
        printf("\nEnter Potential Energy(Joules): ");
        scanf("%lf", &potential_energy);
        printf("Enter mass(kg): ");
        scanf("%lf", &mass);
        system("clear");
        height = mass * gravity / potential_energy;
        printf("height is %lf m",height);
        }
}
else{
    printf("Wrong Input");
}
char restart;
        printf("\ndo you want to restart[Y]/[N]: ");
        scanf(" %c", &restart);
        if (restart == 'Y' || restart == 'y') {
        system("clear");
        continue;
        } else {
        break;
        }
}
    return 0;
}
```

Kinetic and Potential Energy Calculator

-In Python Language

```
import os

def KE():
    print("WELCOME TO KINETIC ENERGY CALCULATOR")

def PE():
    print("WELCOME TO POTENTIAL ENERGY CALCULATOR")

gravity = 9.8

while True:
    print("SELECT CALCULATOR:")
    print("1. Kinetic Energy")
    print("2. Potential Energy")
    choice = int(input("Select: "))
    os.system("clear")

    if choice == 1:
        print("THIS IS Kinetic Energy Calculator")
        print("Note: Formula for Kinetic Energy is 0.5 * mass * velocity * velocity")
        print("What is missing:")
        print("[1] Kinetic Energy")
        print("[2] Mass")
        print("[3] Velocity")
        option = int(input("Select: "))
        os.system("clear")

        if option == 1:
            KE()
            mass = float(input("Enter mass(kg): "))
            velocity = float(input("Enter velocity(m/s): "))
            kinetic_energy = 0.5 * mass * velocity * velocity
            os.system("clear")
            print("Kinetic Energy is", kinetic_energy, "Joules")
        elif option == 2:
            KE()
            kinetic_energy = float(input("Enter Kinetic Energy(Joules): "))
            velocity = float(input("Enter velocity(m/s): "))
            mass = 0.5 * (velocity * velocity) / kinetic_energy
            os.system("clear")
            print("mass is", mass, "kg")
        elif option == 3:
            KE()
            kinetic_energy = float(input("Enter Kinetic Energy(Joules): "))
            mass = float(input("Enter mass(kg): "))
            velocity = 0.5 * mass / kinetic_energy
            fvelocity = velocity ** 0.5
```

```
            os.system("clear")
            print("velocity is", fvelocity, "m/s")

    elif choice == 2:
        print("THIS IS Potential Energy Calculator")
          print("Note: Formula for Potential Energy is mass * gravitational constant *
height")
        print("What is missing:")
        print("[1] Potential Energy")
        print("[2] Mass")
        print("[3] Height")
        option = int(input("Select: "))
        os.system("clear")

        if option == 1:
            PE()
            mass = float(input("Enter mass(kg): "))
            height = float(input("Enter height(m): "))
            potential_energy = mass * gravity * height
            os.system("clear")
            print("Potential Energy is", potential_energy, "Joules")
        elif option == 2:
            PE()
            potential_energy = float(input("Enter Potential Energy(Joules): "))
            height = float(input("Enter height(m): "))
            mass = gravity * height / potential_energy
            os.system("clear")
            print("mass is", mass, "kg")
        elif option == 3:
            PE()
            potential_energy = float(input("Enter Potential Energy(Joules): "))
            mass = float(input("Enter mass(kg): "))
            height = mass * gravity / potential_energy
            os.system("clear")
            print("height is", height, "m")
    else:
        print("Wrong Input")

    restart = str(input("do you want to restart[Y]/[N]: "))
    if restart == 'Y' or restart == 'y':
        os.system("clear")
        continue
    else:
        break
```

Unit Converter for Height and Weight

-In C Language

```
#include <stdio.h>
#include <stdlib.h>

int main() {
    float meter, kilometer, centimeter, inches, yards, feet;
    float gram, kilogram, ounce, pound;
    int choice, opt1, opt2;
    while (1) {
        printf("Welcome to Unit Converter\n");
        printf("SELECT:\n[1]Length\n[2]Weight\n\n");
        printf("Select: ");
        scanf("%d", &choice);
        system("clear");

        if (choice == 1) {
                                                        printf("SELECT    unit    for
Length:\n[1]Meter\n[2]Kilometer\n[3]Centimeter\n[4]Inches\n[5]Yards\n[6]Feet\n\n");
            printf("Select: ");
            scanf("%d", &opt1);
            system("clear");
            if (opt1 == 1) {
                printf("Enter number for meter: ");
                scanf("%f", &meter);
                printf("%f meter in kilometers: %f\n", meter, meter / 1000);
                printf("%f meter in centimeters: %f\n", meter, meter * 100);
                printf("%f meter in inches: %f\n", meter, meter * 39.3701);
                printf("%f meter in yards: %f\n", meter, meter * 1.09361);
                printf("%f meter in feet: %f\n", meter, meter * 3.28084);
            } else if (opt1 == 2) {
                printf("Enter number for kilometer: ");
                scanf("%f", &kilometer);
                printf("%f kilometer in meters: %f\n", kilometer, kilometer * 100000);
                    printf("%f kilometer in centimeters: %f\n", kilometer, kilometer *
100);
                printf("%f kilometer in inches: %f\n", kilometer, kilometer * 39370.1);
                printf("%f kilometer in yards: %f\n", kilometer, kilometer * 1093.61);
                printf("%f kilometer in feet: %f\n", kilometer, kilometer * 3280.84);
            } else if (opt1 == 3) {
                printf("Enter number for centimeter: ");
                scanf("%f", &centimeter);
                printf("%f centimeter in meters: %f\n", centimeter, centimeter / 100);
                  printf("%f centimeter in kilometers: %f\n", centimeter, centimeter /
100000);
                printf("%f centimeter in inches: %f\n", centimeter, centimeter / 2.54);
                printf("%f centimeter in yards: %f\n", centimeter, centimeter / 91.4);
                printf("%f centimeter in feet: %f\n", centimeter, centimeter / 30.48);
```

```
            } else if (opt1 == 4) {
                printf("Enter number for inches: ");
                scanf("%f", &inches);
                printf("%f inches in meters: %f\n", inches, inches * 0.0254);
                printf("%f inches in kilometers: %f\n", inches, inches * 0.0000254);
                printf("%f inches in centimeters: %f\n", inches, inches * 2.54);
                printf("%f inches in yards: %f\n", inches, inches * 0.0277778);
                printf("%f inches in feet: %f\n", inches, inches * 0.0833333);
            } else if (opt1 == 5) {
                printf("Enter number for yards: ");
                scanf("%f", &yards);
                printf("%f yards in meters: %f\n", yards, yards * 0.9144);
                printf("%f yards in kilometers: %f\n", yards, yards * 0.0009144);
                printf("%f yards in centimeters: %f\n", yards, yards * 91.44);
                printf("%f yards in inches: %f\n", yards, yards * 36);
                printf("%f yards in feet: %f\n", yards, yards * 3);
            } else if (opt1 == 6) {
                printf("Enter number for feet: ");
                scanf("%f", &feet);
                printf("%f feet in meters: %f\n", feet, feet * 0.3048);
                printf("%f feet in kilometers: %f\n", feet, feet * 0.0003048);
                printf("%f feet in centimeters: %f\n", feet, feet * 30.48);
                printf("%f feet in inches: %f\n", feet, feet * 12.0);
                printf("%f feet in yards: %f\n", feet, feet / 3.0);
            } else {
                printf("wrong input\n");
            }
        }

        if (choice == 2) {
                                                    printf("SELECT    unit    for
Weight:\n[1]Gram\n[2]Kilogram\n[3]Ounce\n[4]pound\n\n");
            scanf("%d", &opt2);
            printf("Select: ");
            system("clear");
            if (opt2 == 1) {
                float gram;
                printf("Enter number for gram: ");
                scanf("%f", &gram);
                printf("%f gram in kilogram: %f\n", gram, gram / 1000);
                printf("%f gram in ounce: %f\n", gram, gram * 0.035274);
                printf("%f gram in pound: %f\n", gram, gram * 0.00220462);
            } else if (opt2 == 2) {
                printf("Enter number for kilogram: ");
                scanf("%f", &kilogram);
```

```
            printf("%f kilogram in gram: %f\n", kilogram, kilogram * 1000);
            printf("%f kilogram in ounce: %f\n", kilogram, kilogram * 35.274);
            printf("%f kilogram in pound: %f\n", kilogram, kilogram * 2.205);
        } else if (opt2 == 3) {
            printf("Enter number for ounce: ");
            scanf("%f", &ounce);
            printf("%f ounce in gram: %f\n", ounce, ounce * 28.3495);
            printf("%f ounce in kilogram: %f\n", ounce, ounce * 0.0283495);
            printf("%f ounce in pound: %f\n", ounce, ounce * 0.0625);
        } else if (opt2 == 4) {
            printf("Enter number for pound: ");
            scanf("%f", &pound);
            printf("%f pound in gram: %f\n", pound, pound * 453.592);
            printf("%f pound in kilogram: %f\n", pound, pound * 0.453592);
            printf("%f pound in ounce: %f\n", pound, pound * 16);
        } else {
            printf("Wrong Input\n");
        }
    }

    char restart;
    printf("do you want to restart[Y]/[N]: ");
    scanf(" %c", &restart);
    if (restart == 'Y' || restart == 'y') {
        system("clear");
        continue;
    } else {
        break;
    }
}

    return 0;
}
```

Unit Converter for Height and Weight

-In Python Language

```
import os

while True:
    print("Welcome to Unit Converter")
    print("SELECT:\n[1]Length\n[2]Weight\n")
    choice = int(input("Select: "))
    os.system("clear")

    if choice == 1:
                                                    print("SELECT      unit      for
Length:\n[1]Meter\n[2]Kilometer\n[3]Centimeter\n[4]Inches\n[5]Yards\n[6]Feet\n")
        opt1 = int(input("Select: "))
        os.system("clear")
        if opt1 == 1:
            meter = float(input("Enter number for meter: "))
            print(meter, "meter in kilometers: ", meter / 1000)
            print(meter, "meter in centimeters: ", meter * 100)
            print(meter, "meter in inches: ", meter * 39.3701)
            print(meter, "meter in yards: ", meter * 1.09361)
            print(meter, "meter in feet: ", meter * 3.28084)
        elif opt1 == 2:
            kilometer = float(input("Enter number for kilometer: "))
            print(kilometer, "kilometer in meters: ", kilometer * 100000)
            print(kilometer, "kilometer in centimeters: ", kilometer * 100)
            print(kilometer, "kilometer in inches: ", kilometer * 39370.1)
            print(kilometer, "kilometer in yards: ", kilometer * 1093.61)
            print(kilometer, "kilometer in feet: ", kilometer * 3280.84)
        elif opt1 == 3:
            centimeter = float(input("Enter number for centimeter: "))
            print(centimeter, "centimeter in meters: ", centimeter / 100)
            print(centimeter, "centimeter in kilometers: ", centimeter / 100000)
            print(centimeter, "centimeter in inches: ", centimeter / 2.54)
            print(centimeter, "centimeter in yards: ", centimeter / 91.4)
            print(centimeter, "centimeter in feet: ", centimeter / 30.48)
        elif opt1 == 4:
            inches = float(input("Enter number for inches: "))
            print(inches, "inches in meters: ", inches * 0.0254)
            print(inches, "inches in kilometers: ", inches * 0.0000254)
            print(inches, "inches in centimeters: ", inches * 2.54)
            print(inches, "inches in yards: ", inches * 0.0277778)
            print(inches, "inches in feet: ", inches * 0.0833333)
        elif opt1 == 5:
            yards = float(input("Enter number for yards: "))
            print(yards, "yards in meters: ", yards * 0.9144)
            print(yards, "yards in kilometers: ", yards * 0.0009144)
            print(yards, "yards in centimeters: ", yards * 91.44)
            print(yards, "yards in inches: ", yards * 36)
            print(yards, "yards in feet: ", yards * 3)
```

```
    elif opt1 == 6:
        feet = float(input("Enter number for feet: "))
        print(feet, "feet in meters: ", feet * 0.3048)
        print(feet, "feet in kilometers: ", feet * 0.0003048)
        print(feet, "feet in centimeters: ", feet * 30.48)
        print(feet, "feet in inches: ", feet * 12.0)
        print(feet, "feet in yards: ", feet / 3.0)
    else:
        print("wrong input")

if choice == 2:
    print("SELECT unit for Weight:\n[1]Gram\n[2]Kilogram\n[3]Ounce\n[4]pound\n")
    opt2 = int(input("Select: "))
    os.system("clear")
    if opt2 == 1:
        gram = float(input("Enter number for gram: "))
        print(gram, "gram in kilogram: ", gram / 1000)
        print(gram, "gram in ounce: ", gram * 0.035274)
        print(gram, "gram in pound: ", gram * 0.00220462)
    elif opt2 == 2:
        kilogram = float(input("Enter number for kilogram: "))
        print(kilogram, "kilogram in gram: ", kilogram * 1000)
        print(kilogram, "kilogram in ounce: ", kilogram * 35.274)
        print(kilogram, "kilogram in pound: ", kilogram * 2.205)
    elif opt2 == 3:
        ounce = float(input("Enter number for ounce: "))
        print(ounce, "ounce in gram: ", ounce * 28.3495)
        print(ounce, "ounce in kilogram: ", ounce * 0.0283495)
        print(ounce, "ounce in pound: ", ounce * 0.0625)
    elif opt2 == 4:
        pound = float(input("Enter number for pound: "))
        print(pound, "pound in gram: ", pound * 453.592)
        print(pound, "pound in kilogram: ", pound * 0.453592)
        print(pound, "pound in ounce: ", pound * 16)
    else:
        print("Wrong Input")

restart = str(input("do you want to restart[Y]/[N]: "))
if restart == 'Y' or restart == 'y':
    os.system("clear")
    continue
else:
    break
```

Conversion of Decimal to Binary Vice Versa

In C Language

```
#include <stdio.h>
#include <string.h>

void decimalToBinary(int decimal){

    int binary[10], i = 0;

    while (decimal > 0) {
        binary[i] = decimal % 2;
        decimal /= 2;
    i++;
    }

    // Print binary number in reverse order
    printf("Binary of Given Number is = ");
    for (int j = i - 1; j >= 0; j--) {
        printf("%d", binary[j]);
    }


}

int binaryToDecimal(char *binary) {
    int length = strlen(binary);
    int decimal = 0;
    int base = 1;

    for (int i = length - 1; i >= 0; i--) {
        if (binary[i] == '1') {
            decimal += base;
        }
        base *= 2;
    }

    return decimal;
}


int main () {

    printf("CONVERSION OF DECIMAL TO BINARY");

    int decimal;

    printf("\nEnter the Number to Convert: ");
    scanf("%d",&decimal);
```

```
    decimalToBinary(decimal);
    printf("\n\n");

    printf("====================================\n\n");

    printf("CONVERSION OF BINARY TO DECIMAL\n");

    char binary[100];

    printf("Enter a Binary number: ");
    scanf("%s", binary);

    // Check if the input is a valid binary number
    for (int i = 0; i < strlen(binary); i++) {
        if (binary[i] != '0' && binary[i] != '1') {
            printf("Invalid binary number.\n");
            return 1;
        }
    }

    int convert = binaryToDecimal(binary);
    printf("Decimal of Given Number is = %d\n", convert);


    return 0;
}
```

Conversion of Decimal to Binary Vice Versa

-In Python Language

```
def decimalToBinary (decimal):
    binary = [0]*10
    i = 0

    while decimal > 0:
        binary[i] = decimal % 2
        decimal //= 2
        i+=1

    print("Binary of Given Number is =", end=" ")
    for j in range(i - 1, -1, -1):
        print(binary[j], end="")
    print()

def binaryToDecimal (binary):
    length = len(binary)
    decimal = 0
    base = 1


    for i in range(length - 1, -1, -1):
        if binary[i] == '1':
            decimal += base
        base *= 2

    return decimal

print("CONVERSION OF DECIMAL TO BINARY")

decimal = int(input("Enter the Number to Convert: "))
decimalToBinary(decimal)

print()
print("====================================")
print()
print("CONVERSION OF BINARY TO DECIMAL")

binary = input("Enter a Binary Number: ")

#Check if the input is a valid binary number
valid_binary = True
for i in binary:
    if i != '0' and i != '1':
        print("Invalid binary number.")
        valid_binary = False
        break

if valid_binary:
    convert = binaryToDecimal(binary)
    print(f"Decimal of Given Number is = {convert}")
```

Compute the Average Grade and Its Equivalent Grade

-In C Language

```
/*Compute the Average Grade and Its Equivalent Grade*/
#include <stdio.h>

int main () {

    int i, n;
    float marks, sum=0, ave=0;

    printf("Enter Number of Subjects: ");
    scanf("%d", &n);
    printf("\n");

    for (i = 0; i < n; i++) {
        printf("Enter Marks for Subject %d: ", i+1);
        scanf("%f", &marks);
        sum += marks;
    }
    printf("\n");
    ave = sum / n;
    printf("Average Grade: %.2f\n", ave);

    if (ave <= 74)
        printf("FAILED");
    else if (ave <= 76.49)
        printf("Equivalent Grade: 3.00");
    else if (ave <= 79.49)
        printf("Equivalent Grade: 2.75");
    else if (ave <= 81.49)
        printf("Equivalent Grade: 2.50");
    else if (ave <= 84.49)
        printf("Equivalent Grade: 2.25");
    else if (ave <= 88.49)
        printf("Equivalent Grade: 2.00");
    else if (ave <= 91.49)
        printf("Equivalent Grade: 1.75");
    else if (ave <= 94.49)
        printf("Equivalent Grade: 1.50");
    else if (ave <= 97.49)
        printf("Equivalent Grade: 1.25");
    else
        printf("Equivalent Grade: 1.00");



    return 0;
}
```

Compute the Average Grade and Its Equivalent Grade -In Python Language

```
#Computes Average and its Equivalent Grade
n = int(input("Enter Number of Subjects: "))
print()

#initialization
sum = 0
ave = 0
i = 1

while i <= n:
    marks = float(input("Enter Marks for Subject: "))
    sum += marks
    i += 1

ave = sum / n
print()
print(f"Average: {ave}")

if (ave <= 74):
    print("FAILED")
elif (ave <= 76.49):
    print("Equivalent Grade: 3.00")
elif (ave <= 79.49):
    print("Equivalent Grade: 2.75")
elif (ave <= 81.49):
    print("Equivalent Grade: 2.50")
elif (ave <= 84.49):
    print("Equivalent Grade: 2.25")
elif (ave <= 88.49):
    print("Equivalent Grade: 2.00")
elif (ave <= 91.49):
    print("Equivalent Grade: 1.75")
elif (ave <= 94.49):
    print("Equivalent Grade: 1.50")
elif (ave <= 97.49):
    print("Equivalent Grade: 1.25")
else:
    print("Equivalent Grade: 1.00")
```

Number of Days converts to Years, Weeks and Days Vice Versa -In C Language

```
/*Number of Days converts to Years, Weeks and Days vice versa*/
#include<stdio.h>

int main()
{

     int nodays,years,weeks,days;

     printf("\nEnter the total days: ");
     scanf("%d",&nodays);

     years=nodays/365;
     weeks=(nodays%365)/7;
     days=(nodays%365)%7;
     printf("==============================\n");
     printf("%d = %d years,%d weeks,%d days\n", nodays,years,weeks,days);
     printf("==============================\n\n");


     int totalDays, yrs, wks, dys;
     printf("Enter Years: ");
     scanf("%d", &yrs);
     printf("Enter Weeks ");
     scanf("%d", &wks);
     printf("Enter Days: ");
     scanf("%d", &dys);

     totalDays = (yrs * 365) + (wks * 7) + dys;
     printf("==============================\n");
     printf("%d = %d years, %d weeks, %d days\n", totalDays, yrs, wks, dys);
     printf("==============================");

return 0;
}
```

Number of Days converts to Years, Weeks and Days Vice Versa -In Python Language

```
#Years, Days Conversion

numDays = int(input("Enter Number of Days: "))
years = numDays // 365
weeks = (numDays % 365) // 7
days = (numDays % 365) % 7
print("==============================")
print(f"{numDays} = {years}years, {weeks}weeks, {days}days")
print("==============================")
print()

yrs = int(input("Years: "))
wks = int(input("Weeks: "))
dys = int(input("Days: "))

totalDays = (yrs * 365) + (wks * 7) + dys;
print("==============================")
print(f"{totalDays} = {yrs}years, {wks}weeks, {dys}days");
print("==============================")
```

Numerical Form of Dates converts to Textual or Sentence Form -In C Language

```
/*Numerical Form of Dates converts to Textual or Sentence Form */

#include <stdio.h>
#include <stdlib.h>

int main () {

    int mm, dy, yr;

    printf("Enter the date in numerical form (3/27/1997)\n");
    printf("Month (1-12): ");
    scanf("%d", &mm);
    printf("Day (1-31): ");
    scanf("%d", &dy);
    printf("Year: ");
    scanf("%d", &yr);
    system("clear");

    printf("Numerical Form: %d/%d/%d\n", mm, dy, yr);
    printf("Sentence Form: ");
    if (dy >= 1 && dy <= 31) {
         char *days[] = {"1st", "2nd", "3rd", "4th", "5th", "6th", "7th", "8th", "9th",
"10th", "11th", "12th", "13th", "14th", "15th", "16th", "17th", "18th", "19th", "20th",
"21st",  "22nd",  "23rd",  "24th",  "25th",  "26th",  "27th",  "28th",  "29th",  "30th",
"31st"};
        printf("%s of ", days[dy-1]);

    }
    else
        printf("(Invalid Days in a Month) ");


    if (mm >= 1 && mm <= 12){
           char *months[] = {"January", "February", "March", "April", "May", "June",
"July", "August", "September", "October", "November", "December"};
        printf("%s %d", months[mm-1], yr);
    }
    else
        printf("(Invalid Month) %d", yr);



    return 0;
}
```

Numerical Form of Dates converts to Textual or Sentence Form -In Python Language

```
#Numerical Form of Dates converts to Textual or Sentence Form

import os

print("Enter the date in numerical form (3/27/1997)")
mm = int(input("Month (1-12): "))
dy = int(input("Day (1-31): "))
yr = int(input("Year: "))
os.system('clear')

print(f"Numerical Form: {mm}/{dy}/{yr}")
print("Sentence Form: ", end="")

if dy >= 1 and dy <= 31:
      days = ["1st", "2nd", "3rd", "4th", "5th", "6th", "7th", "8th", "9th", "10th",
"11th", "12th", "13th", "14th", "15th", "16th", "17th", "18th", "19th", "20th", "21st",
"22nd", "23rd", "24th", "25th", "26th", "27th", "28th", "29th", "30th", "31st"]
    print(f"{days[dy-1]} of ", end="")
else:
    print("(Invalid Days in a Month) ")

if mm >= 1 and mm <= 12:
    months = ["January", "February", "March", "April", "May", "June", "July", "August",
"September", "October", "November", "December", "Invalid Month"]
    print(f"{months[mm-1]} {yr}")
else:
    print(f"(Invalid Month) {yr}")
```

Counting Vowels and Consonants in user's Full Name

-In C Language

```
/*Counting Vowels and Consonants in user's Full Name*/

#include <stdio.h>
#include <stdlib.h>


int numVowels(char *n) {
    int count = 0;
    while (*n != '\0') {
         char v = *n; // Store or assigns the current character pointed to by n to the
variable v.
         if (v == 'A' || v == 'a' || v == 'E' || v == 'e' || v == 'I' || v == 'i' || v
== 'O' || v == 'o' || v == 'U' || v == 'u') {
          count++;
         }

    n++; // Move to the next character in the string

    }
    return count;
}

int numConsonants(char *n) {
    int count = 0;
    while (*n != '\0') {
        char v = *n;
         if (v == 'B' || v == 'b' || v == 'c' || v == 'C' || v == 'd' || v == 'F' || v
== 'f' || v == 'g' || v == 'G' || v == 'H' || v == 'h' || v == 'j' || v == 'J' || v ==
'K'|| v == 'k'|| v == 'L'|| v == 'l'|| v == 'm'|| v == 'M'|| v == 'N'|| v == 'n'|| v ==
'P'|| v == 'p' || v == 'Q'|| v == 'q' || v == 'R'|| v == 'r'|| v == 's'|| v == 'S'|| v
== 'T'|| v == 't' || v == 'V'|| v == 'v'|| v == 'w'|| v == 'W'|| v == 'x'|| v == 'X'||
v == 'y'|| v == 'Y'|| v == 'Z'|| v == 'z') {
          count++;
         }

    n++;

    }
    return count;
}
```

Counting Vowels and Consonants in user's Full Name

-In C Language

```
int main () {

    char name[1000];


    printf("Enter your Full Name: ");
    fgets(name, sizeof(name), stdin);
    system("clear");
    printf("Full Name: %s", name);

    int totalVowels = numVowels(name);
    int totalConsonants = numConsonants(name);
    printf("Number of Vowels: %d\n", totalVowels);
    printf("Number of Consonant: %d", totalConsonants);

    return 0;
}
```

Counting Vowels and Consonants in user's Full Name

-In Python Language

```
#Counting Vowels and Consonants in user's Full Name

import os

def numVowels(n):
    count = 0
    for v in n:
        if v in 'AEIOUaeiou':
         count+=1
    return count

def numConsonants(n):
    count = 0
    for v in n:
        if v in 'BCDFGHJKLMNÑPQRSTVWXYZbcdfghjklmnñpqrstvwxyz':
         count+=1
    return count


name = input("Enter your Full Name: ")
os.system("clear")

print(f"Full Name: {name}")

totalVowels = numVowels(name)
print(f"Number of Vowels: {totalVowels}")
totalVowels = numConsonants(name)
print(f"Number of Consonants: {totalVowels}")
```

Counting repeated letters in a sentence

-In C Language

```
//Counting repeated letters in a sentence

#include<stdio.h>
#include<string.h>

int main() {

    int i, k = 0, count[26] = {0}, x;
    char string[100];

    printf("Enter a sentence: ");
    fgets(string, sizeof(string), stdin);

    while(string[k] != '\0') {
        if(string[k] >= 'a' && string[k] <= 'z') {
            x = string[k] - 'a';
            count[x]++;
        }
        if(string [k] >= 'A' && string[k] <= 'Z') {
           x = string[k] - 'A';
            count[x]++;
        }
        k++;
    }

    for(i = 0; i < 26; i++){
        if(count[i] != 0) {
            printf("%c occured %d times\n", i + 'a',count[i]);
        }
    }

}
```

Counting repeated letters in a sentence

-In Python Language

```
#Counting repeated letters in a string

k = 0
x = 0
count = [0] * 26

string = input("Enter a Sentence: ")

while k < len(string):
    if string[k] >= 'a' and string[k] <= 'z':
        x = ord(string[k]) - ord('a')
        count[x] += 1;
    if string[k] >= 'A' and string[k] <= 'Z':
        x = ord(string[k]) - ord('A')
        count[x] += 1;
    k+=1

i = 0

while i < 26:
    if count[i] != 0:
      print(f"{chr(i + ord('a'))} occured {count[i]} times")

    i+=1
```

Password Creation and Confirmation

In C Language

```
#include <stdio.h>
#include <string.h>
#include <ctype.h>
#include <stdlib.h>

int main() {
    char password[10], confirmedpass[10];

    while (1) {
        printf("Create Password (Digits only): ");
        fgets(password, sizeof(password), stdin);
        password[strcspn(password, "\n")] = '\0';
        system("clear");

        int i;
        for (i = 0; i < strlen(password); i++) {
            if (!isdigit(password[i])) {
                printf("Password must only contain digits. Try again.\n");
                break;
            }
        }

        if (i == strlen(password)) {
        //Password is valid and it contains digits only
            break;
        }
    }


    int attempts = 0, maxAttempts = 3;
    printf("Warming: 3 Attempts to Confirm your Password!\n\n");
    while (password != confirmedpass && attempts < maxAttempts) {
    printf("Confirm your Password: ");
    fgets(confirmedpass, sizeof(confirmedpass), stdin);
    confirmedpass[strcspn(confirmedpass, "\n")] = '\0';

    system("clear");
```

```
    if (strcmp(password, confirmedpass) == 0) {
        printf("Password is Correct!\n");
        break;
    }
    else {
        printf("Passwords do not match!\n");
        attempts++;
    }


    if (attempts >= maxAttempts) {
    system("clear");
    printf("Maximum attempts reached. Password confirmation failed.");
    break;
    }
    }


    return 0;
}
```

Password Creation and Confirmation

-In Python Language

```
import os

def checkPass(password):
    for p in password:
        if not p.isdigit():
            print("Password must only contain digits. Try again.")
            return False
    return True

password = input("Create Password (digits only): ")
os.system("clear")

# Password is valid and it contains digits only
while not checkPass(password):
    password = input("Create Password (digits only): ")

os.system("clear")

attempts = 0
maxAttempts = 3
confirmedpass = ""

print("Warming: 3 Attempts to Confirm your Password!")
print()
while confirmedpass != password and attempts < maxAttempts:
    confirmedpass = input("Confirm your Password: ")
    os.system("clear")

    if confirmedpass == password:
        print("Password is Correct!")
        break
    else:
        print("Passwords do not match!")
        attempts += 1


if attempts >= maxAttempts:
    os.system("clear")
    print("Maximum attempts reached. Password confirmation failed.")
```

Birthday Zodiac Sign Finder

In C Language

```c
#include <stdio.h>

int main() {
    int month, day;

    // Print the border at the top
    printf("************************************************\n");
    printf("*                          *\n");
    printf("*      Welcome to Zodiac Finder     *\n");
    printf("*                          *\n");
    printf("************************************************\n\n");

    // Ask the user for the birth month
    printf("Enter your birth month (1-12): ");
    scanf("%d", &month);

    // Ask the user for the birth day
    printf("Enter your birth day (1-31): ");
    scanf("%d", &day);

    // Check the month and day to determine the zodiac sign
    if (month == 3 && day >= 21 || month == 4 && day <= 19) {
        printf("Your zodiac sign is Aries (Ram): March 21-April 19\n");
    } else if (month == 4 && day >= 20 || month == 5 && day <= 20) {
        printf("Your zodiac sign is Taurus (Bull): April 20-May 20\n");
    } else if (month == 5 && day >= 21 || month == 6 && day <= 21) {
        printf("Your zodiac sign is Gemini (Twins): May 21-June 21\n");
    } else if (month == 6 && day >= 22 || month == 7 && day <= 22) {
        printf("Your zodiac sign is Cancer (Crab): June 22-July 22\n");
    } else if (month == 7 && day >= 23 || month == 8 && day <= 22) {
        printf("Your zodiac sign is Leo (Lion): July 23-August 22\n");
    } else if (month == 8 && day >= 23 || month == 9 && day <= 22) {
        printf("Your zodiac sign is Virgo (Virgin): August 23-September 22\n");
    } else if (month == 9 && day >= 23 || month == 10 && day <= 23) {
        printf("Your zodiac sign is Libra (Balance): September 23-October 23\n");
    } else if (month == 10 && day >= 24 || month == 11 && day <= 21) {
        printf("Your zodiac sign is Scorpius (Scorpion): October 24-November 21\n");
    } else if (month == 11 && day >= 22 || month == 12 && day <= 21) {
        printf("Your zodiac sign is Sagittarius (Archer): November 22-December 21\n");
    } else if (month == 12 && day >= 22 || month == 1 && day <= 19) {
        printf("Your zodiac sign is Capricornus (Goat): December 22-January 19\n");
    } else if (month == 1 && day >= 20 || month == 2 && day <= 18) {
        printf("Your zodiac sign is Aquarius (Water Bearer): January 20-February 18\n");
    } else if (month == 2 && day >= 19 || month == 3 && day <= 20) {
        printf("Your zodiac sign is Pisces (Fish): February 19-March 20\n");
    } else {
        printf("Invalid date. Please enter a valid month and day.\n");
    }

    return 0;
}
```

Birthday Zodiac Sign Finder

-In Python Language

```
def main():
    # Print the border at the top
    print("************************************************")
    print("*                          *")
    print("*      Welcome to Zodiac Finder     *")
    print("*                          *")
    print("************************************************")
    print()

    # Ask the user for the birth month
    month = int(input("Enter your birth month (1-12): "))

    # Ask the user for the birth day
    day = int(input("Enter your birth day (1-31): "))

    # Check the month and day to determine the zodiac sign
    if (month == 3 and day >= 21) or (month == 4 and day <= 19):
        print("Your zodiac sign is Aries (Ram): March 21-April 19")
    elif (month == 4 and day >= 20) or (month == 5 and day <= 20):
        print("Your zodiac sign is Taurus (Bull): April 20-May 20")
    elif (month == 5 and day >= 21) or (month == 6 and day <= 21):
        print("Your zodiac sign is Gemini (Twins): May 21-June 21")
    elif (month == 6 and day >= 22) or (month == 7 and day <= 22):
        print("Your zodiac sign is Cancer (Crab): June 22-July 22")
    elif (month == 7 and day >= 23) or (month == 8 and day <= 22):
        print("Your zodiac sign is Leo (Lion): July 23-August 22")
    elif (month == 8 and day >= 23) or (month == 9 and day <= 22):
        print("Your zodiac sign is Virgo (Virgin): August 23-September 22")
    elif (month == 9 and day >= 23) or (month == 10 and day <= 23):
        print("Your zodiac sign is Libra (Balance): September 23-October 23")
    elif (month == 10 and day >= 24) or (month == 11 and day <= 21):
        print("Your zodiac sign is Scorpius (Scorpion): October 24-November 21")
    elif (month == 11 and day >= 22) or (month == 12 and day <= 21):
        print("Your zodiac sign is Sagittarius (Archer): November 22-December 21")
    elif (month == 12 and day >= 22) or (month == 1 and day <= 19):
        print("Your zodiac sign is Capricornus (Goat): December 22-January 19")
    elif (month == 1 and day >= 20) or (month == 2 and day <= 18):
        print("Your zodiac sign is Aquarius (Water Bearer): January 20-February 18")
    elif (month == 2 and day >= 19) or (month == 3 and day <= 20):
        print("Your zodiac sign is Pisces (Fish): February 19-March 20")
    else:
        print("Invalid date. Please enter a valid month and day.")
```

Class Officers Selection

In C Language

```
#include <stdio.h>

void border() {
    printf("\n**********************************************\n");
}

int main() {
    // Define variables for user details and candidate names for each position
    char yourName[100];
    char yourSection[100];
    char presidentName[100];
    char vicePresidentName[100];
    char secretaryName[100];
    char treasurerName[100];
    char auditorName[100];
    char proName[100];
    char museName[100];
    char escortName[100];

    // Print the border and welcome the user
    border();
    printf("* Welcome to the Classroom Officers Election! *\n");
    border();

    // Get the user's name
    printf("\nEnter your name: ");
    fgets(yourName, sizeof(yourName), stdin);

    // Get the user's section
    printf("Enter your section: ");
    fgets(yourSection, sizeof(yourSection), stdin);

    // Get the name of the candidate for President
    printf("Enter the name of the candidate for President: ");
    fgets(presidentName, sizeof(presidentName), stdin);

    // Get the name of the candidate for Vice-President
    printf("Enter the name of the candidate for Vice-President: ");
    fgets(vicePresidentName, sizeof(vicePresidentName), stdin);

    // Get the name of the candidate for Secretary
    printf("Enter the name of the candidate for Secretary: ");
    fgets(secretaryName, sizeof(secretaryName), stdin);

    // Get the name of the candidate for Treasurer
    printf("Enter the name of the candidate for Treasurer: ");
    fgets(treasurerName, sizeof(treasurerName), stdin);

    // Get the name of the candidate for Auditor
    printf("Enter the name of the candidate for Auditor: ");
    fgets(auditorName, sizeof(auditorName), stdin);
```

```
    // Get the name of the candidate for Public Relations Officer (P.R.O)
    printf("Enter the name of the candidate for Public Relations Officer (P.R.O): ");
    fgets(proName, sizeof(proName), stdin);

    // Get the name of the candidate for Muse
    printf("Enter the name of the candidate for Muse: ");
    fgets(museName, sizeof(museName), stdin);

    // Get the name of the candidate for Escort
    printf("Enter the name of the candidate for Escort: ");
    fgets(escortName, sizeof(escortName), stdin);

    // Print the border and display the election details
    border();
    printf("*     DETAILS OF ELECTION:        *\n");
    border();
    printf("\n* Name: %s", yourName);
    printf("* Section: %s", yourSection);
    printf("\n* Election Results: \n");
    printf("\n* President Candidate: %s", presidentName);
    printf("* Vice-President Candidate: %s", vicePresidentName);
    printf("* Secretary Candidate: %s", secretaryName);
    printf("* Treasurer Candidate: %s", treasurerName);
    printf("* Auditor Candidate: %s", auditorName);
    printf("* Public Relations Officer (P.R.O) Candidate: %s", proName);
    printf("* Muse Candidate: %s", museName);
    printf("* Escort Candidate: %s", escortName);
    border();
    printf("* You have successfully voted!        *\n");
    printf("* Thank you for voting!            *\n");
    border();
  return 0;
}
```

Class Officers Selection

-In Python Language

```
def border():
    print("\n***********************************************")

def main():
    # Print the border and welcome the user
    border()
    print("* Welcome to the Classroom Officers Election! *")
    border()

    # Get the user's name
    your_name = input("\nEnter your name: ")

    # Get the user's section
    your_section = input("Enter your section: ")

    # Get the name of the candidate for each position
    president_name = input("Enter the name of the candidate for President: ")
    vice_president_name = input("Enter the name of the candidate for Vice-President: ")
    secretary_name = input("Enter the name of the candidate for Secretary: ")
    treasurer_name = input("Enter the name of the candidate for Treasurer: ")
    auditor_name = input("Enter the name of the candidate for Auditor: ")
      pro_name = input("Enter the name of the candidate for Public Relations Officer
(P.R.O): ")
    muse_name = input("Enter the name of the candidate for Muse: ")
    escort_name = input("Enter the name of the candidate for Escort: ")

    # Print the border and display the election details
    border()
    print("*     DETAILS OF ELECTION:        *")
    border()
    print(f"\n* Name: {your_name}")
    print(f"* Section: {your_section}")
    print("\n* Election Results: ")
    print(f"* President Candidate: {president_name}")
    print(f"* Vice-President Candidate: {vice_president_name}")
    print(f"* Secretary Candidate: {secretary_name}")
    print(f"* Treasurer Candidate: {treasurer_name}")
    print(f"* Auditor Candidate: {auditor_name}")
    print(f"* Public Relations Officer (P.R.O) Candidate: {pro_name}")
    print(f"* Muse Candidate: {muse_name}")
    print(f"* Escort Candidate: {escort_name}")
    border()
    print("* You have successfully voted!        *")
    print("* Thank you for voting!            *")
    border()
```

Concert Ticket Reservation

In C Language

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

void create_ticket() {
    char name[100];
    char date[11];
    char time[10];
    char seat_number[100];
    float ticket_price_php = 1500.0;
    float amount_paid;
    float change_php;
    char more_tickets[100];

    while (1) {
        printf("************************************************************\n");
        printf(" Welcome to the Britney Spears Concert Ticket Reservation\n");
        printf("************************************************************\n");

        // Get user input for ticket details
        printf("Enter your name: ");
        scanf("%s", name);

        printf("Enter the date of the concert (MM/DD/YYYY): ");
        scanf("%s", date);

        printf("Enter the time of the concert: ");
        scanf("%s", time);

        printf("Enter your preferred seat number: ");
        scanf("%s", seat_number);

        printf("************************************************************\n");
        printf(" Welcome to the Britney Spears Concert Ticket Reservation\n");
        printf("************************************************************\n");

        // Display the ticket price to the user
        printf("\nTicket Price: PHP %.2f\n\n", ticket_price_php);

        // Get payment information
        printf("Enter amount paid in PHP: ");
        scanf("%f", &amount_paid);

        // Calculate change in PHP
        if (amount_paid >= ticket_price_php) {
            change_php = amount_paid - ticket_price_php;
            printf("Change: PHP %.2f\n", change_php);
        } else {
            printf("Insufficient payment. Please pay PHP %.2f or more.\n", ticket_price_php);
            continue; // Restart the loop to allow another attempt
        }
```

```
        // Print the ticket
        printf("\n------------------------------\n");
        printf("  Concert Ticket\n");
        printf("------------------------------\n");
        printf("Name: %s\n", name);
        printf("Concert: Britney Spears Concert\n");
        printf("Date: %s\n", date);
        printf("Time: %s\n", time);
        printf("Seat Number: %s\n", seat_number);
        printf("------------------------------\n");

        // Ask if the user wants to book another ticket
        printf("Do you want to book another ticket? (yes/no): ");
        scanf("%s", more_tickets);

        if (strcmp(more_tickets, "no") == 0) {
            printf("\nThank you for booking your Britney Spears concert ticket(s)!\n");
            break;
        }
    }
}

int main() {
    create_ticket();
    return 0;
}
```

Concert Ticket Reservation

-In Python Language

```
def create_ticket():
    ticket_price_php = 1500.0

    while True:
        print("************************************************************")
        print(" Welcome to the Britney Spears Concert Ticket Reservation")
        print("************************************************************")

        # Get user input for ticket details
        name = input("Enter your name: ")
        date = input("Enter the date of the concert (MM/DD/YYYY): ")
        time = input("Enter the time of the concert: ")
        seat_number = input("Enter your preferred seat number: ")

        print("************************************************************")
        print(" Welcome to the Britney Spears Concert Ticket Reservation")
        print("************************************************************")

        # Display the ticket price to the user
        print(f"\nTicket Price: PHP {ticket_price_php:.2f}\n")

        # Get payment information
        amount_paid = float(input("Enter amount paid in PHP: "))

        # Calculate change in PHP
        if amount_paid >= ticket_price_php:
            change_php = amount_paid - ticket_price_php
            print(f"Change: PHP {change_php:.2f}")
        else:
            print(f"Insufficient payment. Please pay PHP {ticket_price_php:.2f} or more.")
            continue # Restart the loop to allow another attempt

        # Print the ticket
        print("\n------------------------------")
        print("  Concert Ticket")
        print("------------------------------")
        print(f"Name: {name}")
        print("Concert: Britney Spears Concert")
        print(f"Date: {date}")
        print(f"Time: {time}")
        print(f"Seat Number: {seat_number}")
        print("------------------------------")

        # Ask if the user wants to book another ticket
        more_tickets = input("Do you want to book another ticket? (yes/no): ").strip().lower()

        if more_tickets == "no":
            print("\nThank you for booking your Britney Spears concert ticket(s)!")
            break

create_ticket()
```

Name Counter

-In C Language

```
#include <stdio.h>

int main() {
    char name[100];
    int count = 0;
    int i = 0;


    printf("================================\n");
    printf(" Welcome to the Name Counter! \n");
    printf("================================\n\n");


    printf("Please enter your name: ");
    fgets(name, sizeof(name), stdin);


    while (name[i] != '\0' && name[i] != '\n') {
        if (name[i] != ' ') {
            count++;
        }
        i++;
    }


    printf("\n================================\n");
    printf(" The number of characters in your \n");
    printf("     name is: %d      \n", count);
    printf("================================\n");

    return 0;
}
```

Name Counter

-In Python Language

```
print("================================")
print(" Welcome to the Name Counter! ")
print("================================\n")


name = input("Please enter your name: ")


count = 0
for char in name:
    if char != ' ':
        count += 1


print("\n================================")
print(" The number of characters in your ")
print(f"     name is: {count}      ")
print("================================")
```

Quote of the day

-In C Language

```
#include <stdio.h>
#include <stdlib.h>

int main() {
    int choice;

    printf("1.The best and most beautiful things in the world cannot be seen or even touched - they must be felt with the heart. -Helen Keller\n");
    printf("2. The purpose of our lives is to be happy. - Dalai Lama\n");
     printf("3. Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma - which is living with the results of other people's thinking. -Steve Jobs\n");
      printf("4. The future belongs to those who believe in the beauty of their dreams. -Eleanor Roosevelt\n");
    printf("5. “Go confidently in the direction of your dreams! Live the life you've imagined.” - Henry David Thoreau\n");
     printf("6.“Life is a succession of lessons which must be lived to be understood.” - Ralph Waldo Emerson\n");
     printf("7. Spread love everywhere you go. Let no one ever come to you without leaving happier. - Mother Teresa\n");
    printf("8.It is during our darkest moments that we must focus to see the light. -Aristotle\n");
     printf("9. Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful. - Albert Schweitzer\n");
    printf("10. The best way to predict the future is to invent it. - Alan Kay\n\n");

    // Ask the user to choose a quote
    printf("Enter a quote of the day 1 to 10: ");
    scanf("%d", &choice);

system("clear");

    // Display the quote based on the user's choice
    if (choice == 1) {
        printf("The only way to do great work is to love what you do. - Steve Jobs\n");
    } else if (choice == 2) {
        printf("The purpose of our lives is to be happy. - Dalai Lama\n");
    } else if (choice == 3) {
        printf("Life is what happens when you’re busy making other plans. - John Lennon\n");
    } else if (choice == 4) {
        printf("Get busy living or get busy dying. - Stephen King\n");
    } else if (choice == 5) {
         printf("You have within you right now, everything you need to deal with whatever the world can throw at you. - Brian Tracy\n");
    } else if (choice == 6) {
        printf("Believe you can and you're halfway there. - Theodore Roosevelt\n");
    } else if (choice == 7) {
        printf("The only impossible journey is the one you never begin. - Tony Robbins\n");
    } else if (choice == 8) {
        printf("Life is either a daring adventure or nothing at all. - Helen Keller\n");
    } else if (choice == 9) {
         printf("Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful. - Albert Schweitzer\n");
    } else if (choice == 10) {
        printf("The best way to predict the future is to invent it. - Alan Kay\n");
    } else {
        printf("Invalid choice. Please enter a number between 1 and 10.\n");
    }

    return 0;
}
```

Quote of the day

-In Python Language

```
import os

    # Display the list of quotes
print("1. The best and most beautiful things in the world cannot be seen or even touched - they must be felt with the heart. - Helen Keller")
print("2. The purpose of our lives is to be happy. - Dalai Lama")
print("3. Your time is limited, so don't waste it living someone else's life. Don't be trapped by dogma - which is living with the results of other people's thinking. - Steve Jobs")
print("4. The future belongs to those who believe in the beauty of their dreams. - Eleanor Roosevelt")
print("5. Go confidently in the direction of your dreams! Live the life you've imagined. - Henry David Thoreau")
print("6. Life is a succession of lessons which must be lived to be understood. - Ralph Waldo Emerson")
print("7. Spread love everywhere you go. Let no one ever come to you without leaving happier. - Mother Teresa")
print("8. It is during our darkest moments that we must focus to see the light. - Aristotle")
print("9. Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful. - Albert Schweitzer")
print("10. The best way to predict the future is to invent it. - Alan Kay")

    # Ask the user to choose a quote
choice = int(input("Enter a quote of the day (1 to 10): "))
os.system("clear")

    # Display the quote based on the user's choice
if choice == 1:
        print("The only way to do great work is to love what you do. - Steve Jobs")
elif choice == 2:
        print("The purpose of our lives is to be happy. - Dalai Lama")
elif choice == 3:
        print("Life is what happens when you're busy making other plans. - John Lennon")
elif choice == 4:
        print("Get busy living or get busy dying. - Stephen King")
elif choice == 5:
          print("You have within you right now, everything you need to deal with whatever the world can throw at you. - Brian Tracy")
elif choice == 6:
        print("Believe you can and you're halfway there. - Theodore Roosevelt")
elif choice == 7:
        print("The only impossible journey is the one you never begin. - Tony Robbins")
elif choice == 8:
        print("Life is either a daring adventure or nothing at all. - Helen Keller")
elif choice == 9:
        print("Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful. - Albert Schweitzer")
elif choice == 10:
        print("The best way to predict the future is to invent it. - Alan Kay")
else:
        print("Invalid choice. Please enter a number between 1 and 10.")
```

Riddle Game

-In C Language

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>


#define MAX_LENGTH 100 // Maximum length for names, riddles, and answers

void game() {
    printf("**********************************\n");
    printf("* Welcome to the Riddle Game!:) *\n");
    printf("**********************************\n");

}

void clear_input_buffer() {
    while (getchar() != '\n'); // Clear any extra input
}

int get_valid_char_input(char *input) {
    if (scanf(" %c", input) != 1 || (*input != 'y' && *input != 'n' && *input != 'Y' && *input
!= 'N')) {
        printf("Invalid input. Please enter 'y' or 'n'.\n");
        clear_input_buffer();
        return 0;
    }
    clear_input_buffer();
    return 1;
}

int main() {
    // Declare variables to store the riddle, answer, and guess
    char user_riddle[MAX_LENGTH];
    char user_answer[MAX_LENGTH];
    char user_guess[MAX_LENGTH];

    // Declare variables to store scores of both players
    int player1_score = 0;
    int player2_score = 0;
    char play_again; // Variable to store player's choice to play again

    // Declare variables to store player names
    char player1_name[MAX_LENGTH];
    char player2_name[MAX_LENGTH];

    // Get names of both players
    game();
    printf("\nRiddle Example: Butot balat lumilipad?\n");
    printf("Answer: SARANGGOLA\n");
    printf("\nEnter your Name Player 1: ");
    fgets(player1_name, sizeof(player1_name), stdin);
    player1_name[strcspn(player1_name, "\n")] = '\0'; // Remove newline character
```

```
    printf("Enter your Name Player 2: ");
    fgets(player2_name, sizeof(player2_name), stdin);
    player2_name[strcspn(player2_name, "\n")] = '\0'; // Remove newline character

    system("clear"); // Clear the screen (use "cls" for Windows)

    game();
    do {
        // Player 1's turn to enter a riddle and answer
        printf("\n%s, Enter a riddle:\n", player1_name);
        fgets(user_riddle, sizeof(user_riddle), stdin);
        user_riddle[strcspn(user_riddle, "\n")] = '\0'; // Remove newline character

        printf("Enter the answer:\n");
        fgets(user_answer, sizeof(user_answer), stdin);
        user_answer[strcspn(user_answer, "\n")] = '\0'; // Remove newline character

        // Clear the input buffer
        clear_input_buffer();

        system("clear"); // Clear the screen (use "cls" for Windows)

        // Player 2's turn to guess the riddle
        game();
        printf("%s, guess the answer to the riddle:\n", player2_name);
        printf("%s\n", user_riddle);
        fgets(user_guess, sizeof(user_guess), stdin);
        user_guess[strcspn(user_guess, "\n")] = '\0'; // Remove newline character

        // Check if the guess is correct
        if (strcmp(user_guess, user_answer) == 0) {
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
            printf("That's Correct! %s gets a point.\n", player2_name);
            player2_score++;
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
        } else {
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
            printf("Wrong! The correct answer was: %s\n", user_answer);
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
        }

        // Display current scores
             printf("\nScores:\n%s:  %d\n%s:  %d\n",  player1_name,  player1_score,  player2_name,
player2_score);

        // Player 2's turn to enter a riddle and answer
        printf("\n%s, enter a riddle:\n", player2_name);
        fgets(user_riddle, sizeof(user_riddle), stdin);
        user_riddle[strcspn(user_riddle, "\n")] = '\0'; // Remove newline character

        printf("Enter the answer:\n");
        fgets(user_answer, sizeof(user_answer), stdin);
        user_answer[strcspn(user_answer, "\n")] = '\0'; // Remove newline character
```

```
        // Clear the input buffer
        clear_input_buffer();

        system("clear"); // Clear the screen (use "cls" for Windows)

        // Player 1's turn to guess the riddle
        game();
        printf("%s, Guess the answer to the riddle:\n", player1_name);
        printf("%s\n", user_riddle);
        fgets(user_guess, sizeof(user_guess), stdin);
        user_guess[strcspn(user_guess, "\n")] = '\0'; // Remove newline character

        // Check if the guess is correct
        if (strcmp(user_guess, user_answer) == 0) {
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
            printf("That's Correct! %s gets a point.\n", player1_name);
            player1_score++;
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
        } else {
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
            printf("Wrong! The correct answer was: %s\n", user_answer);
            printf("~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~\n");
        }

        // Display current scores
        printf("\nScores:\n%s: %d\n%s: %d\n", player1_name, player1_score, player2_name, player2_score);

        // Ask players if they want to play again
        printf("\nPlay again? (y/n): ");
        while (!get_valid_char_input(&play_again)) {
            printf("\nPlay again? (y/n): ");
        }

        system("clear"); // Clear the screen (use "cls" for Windows)

    } while (play_again == 'y' || play_again == 'Y'); // Repeat if players want to play again

    // Display final scores
    game();
    printf("================================\n");
    printf(" Final Scores:\n%s: %d\n%s: %d\n", player1_name, player1_score, player2_name, player2_score);
    printf("================================\n");

    // Determine the winner and display the appropriate message
    if (player1_score > player2_score) {
        printf("\n%s Wins! You win!\n", player1_name);
        printf("\n%s, Better luck next time.\n", player2_name);
    } else if (player2_score > player1_score) {
        printf("\n%s Wins! You win!\n", player2_name);
        printf("\n%s, Better luck next time.\n", player1_name);
    } else {
        printf("\nIt's a tie! Nice game!\n");
    }

    printf("\nThanks for playing!\n");

    return 0;
}
```

Riddle Game

-In Python Language

```
import os

# Define a function to display the game welcome message
def game():
    print("**********************************")
    print("* Welcome to the Riddle Game! :) *")
    print("**********************************")

# Define a function to clear the console screen
def clear_screen():
    os.system('clear')

# Define the main game function
def main():
    # Initialize variables for storing player scores
    player1_score = 0
    player2_score = 0

    # Get player names
    game()
    print("\nRiddle Example: Butot balat lumilipad?")
    print("Answer: SARANGGOLA\n")

    player1_name = input("Enter your Name Player 1: ")
    player2_name = input("Enter your Name Player 2: ")

    # Clear the screen after getting player names
    clear_screen()

    # Display the welcome message and riddle example again
    game()
    print("\nRiddle Example: Butot balat lumilipad?")
    print("Answer: SARANGGOLA\n")

    # Main game loop
    while True:
        # Player 1's turn to enter a riddle and answer
        print(f"\n{player1_name}, Enter a riddle:")
        user_riddle = input()
        print("Enter the answer:")
        user_answer = input()

        clear_screen()
        game()

        # Player 2's turn to guess the riddle
        print(f"{player2_name}, guess the answer to the riddle:")
        print(user_riddle)
        user_guess = input()

        # Check if the guess is correct
        if user_guess.lower() == user_answer.lower():
            print(f"That's Correct! {player2_name} gets a point.")
            player2_score += 1
```

```
        else:
            print(f"Wrong! The correct answer was: {user_answer}")

        # Display current scores
        print(f"\nScores:\n{player1_name}: {player1_score}\n{player2_name}: {player2_score}")

        # Player 2's turn to enter a riddle and answer
        print(f"\n{player2_name}, enter a riddle:")
        user_riddle = input()
        print("Enter the answer:")
        user_answer = input()

        clear_screen()
        game()

        # Player 1's turn to guess the riddle
        print(f"{player1_name}, Guess the answer to the riddle:")
        print(user_riddle)
        user_guess = input()

        # Check if the guess is correct
        if user_guess.lower() == user_answer.lower():
            print(f"That's Correct! {player1_name} gets a point.")
            player1_score += 1
        else:
            print(f"Wrong! The correct answer was: {user_answer}")

        # Display current scores
        print(f"\nScores:\n{player1_name}: {player1_score}\n{player2_name}: {player2_score}")

        # Ask players if they want to play again
        play_again = input("\nPlay again? (y/n): ").strip().lower()
        if play_again != 'y':
            break

        clear_screen()
        game()

    # Display final scores
    game()
    print("==================================")
    print(f" Final Scores:\n{player1_name}: {player1_score}\n{player2_name}: {player2_score}")
    print("==================================")

    # Determine the winner and display the appropriate message
    if player1_score > player2_score:
        print(f"\n{player1_name} Wins! You win!")
        print(f"\n{player2_name}, Better luck next time.")
    elif player2_score > player1_score:
        print(f"\n{player2_name} Wins! You win!")
        print(f"\n{player1_name}, Better luck next time.")
    else:
        print("\nIt's a tie! Nice game!")

    print("\nThanks for playing!")

# Call the main function to start the game
main()
```

print("OUTPUTS pt 1")

-In C Language
-In Python Language

[1] **Collatz Conjecture** - The C code showcases the Collatz Conjecture, a mathematical sequence where each number is transformed: if even, divide by 2; if odd, multiply by 3 and add 1 until reaching 1. The code takes a user input, applies the transformation rules, and displays the sequence until it converges to 1.

```
Presentation of collatz conjecture
Summary: if a number is even, divide by 2
if a number is odd, multiply by 3 then add 1
The last number is always 1

enter a number: 4
```

```
Presentation of collatz conjecture for 4:
4
2
1
```

[2] **Divisible Finder and Prime Number Detector** - The code structure allows for interactive use to find divisible numbers and identify prime numbers efficiently.

```
Divisible Finder and Prime Number Detector
Enter a number: 50
Enter a divisor: 8
```

```
50 is not divisible by 8
50 is not a prime number
do you want to restart[Y]/[N]:
```

[3] **GWA Calculator**- The provided code is a simple GWA calculator written in C. It allows users to calculate their GWA by entering the grades and units for each subject.

```
WELCOME TO GWA CALCULATOR
Enter the number of subjects: 8
```

```
Your GWA is: 1.49
you passed
do you want to restart[Y]/[N]:
```

```
Enter the grade for subject 8: 1.5
Enter the number of units for subject 8: 3
```

[4] **Caesar Cipher- Encryption and Decryption**- The C program demonstrates a simple Caesar Cipher encryption and decryption technique. It prompts the user to enter text and a shift value, then encrypts and decrypts the text based on the provided shift.

```
Welcome to Caesar Cipher
Enter text to encrypt: Uno Katimbang
Enter shift value: 4
```

```
Encrypted text: Yrs Oexmqferk
Decrypted text: Uno Katimbang
do you want to restart[Y]/[N]: Y
```

[5] **Boyle's Law Calculator** - The provided code is a Boyle's Law calculator implemented in the C programming language. It allows users to calculate the initial pressure, initial volume, final pressure, or final volume based on the Boyle's Law formula: P1 * V1 = P2 * V2.

```
THIS IS Boyle's Law Calculator
Note: Formula for Boyle's Law is P1 * V1 = P2 * V2
What is missing:
[1]Initial Pressure
[2]Initial Volume
[3]Final Pressure
[4]Final Volume
Select: 3

Enter initial pressure: 40
Enter initial volume: 32
Enter final volume: 23
```

```
The Final Pressure is 55.652172 atm

do you want to restart[Y]/[N]:
```

[6] **Kinetic and Potential Energy Calculator** - The provided code is a C program that calculates kinetic and potential energy based on user input. It presents a menu to the user, allowing them to choose between calculating kinetic energy or potential energy. The program then prompts the user for the necessary input values and performs the calculations accordingly.

```
THIS IS Kinetic Energy Calculator
Note: Formula for Kinetic Energy is 0.5 * mass * velocity * velocity
What is missing:
[1]Kinetic Energy
[2]Mass
[3]Velocity

Select: 2
```

```
WELCOME TO KINETIC ENERGY CALCULATOR

Enter Kinetic Energy(Joules): 450
Enter velocity(m/s): 25
```

```
mass is 0.694444 kg
do you want to restart[Y]/[N]:
```

[7] **Unit Converter for Height and Weight**- This code implements a simple unit converter program in C that allows users to convert between various units of length and weight based on user-selected options, offering conversions like meters to kilometers, inches to centimeters, grams to kilograms, etc., with a menu-driven interface and the ability to restart or exit based on user input.

```
Welcome to Unit Converter
SELECT:
[1]Length
[2]Weight

Select: 1
```

```
SELECT unit for Length:
[1]Meter
[2]Kilometer
[3]Centimeter
[4]Inches
[5]Yards
[6]Feet

Select: 4
```

```
Enter number for inches: 50
50.000000 inches in meters: 1.270000
50.000000 inches in kilometers: 0.001270
50.000000 inches in centimeters: 127.000000
50.000000 inches in yards: 1.388890
50.000000 inches in feet: 4.166665
do you want to restart[Y]/[N]:
```

[8] **Conversion of Decimal to Binary Vice Versa** - This code performs conversions between decimal and binary numbers: it converts a given decimal number to its binary representation and conversely, converts a binary number input by the user back to its decimal form, with error handling for invalid binary inputs.

```
CONVERSION OF DECIMAL TO BINARY
Enter the Number to Convert: 40
Binary of Given Number is = 101000
```

```
==================================

CONVERSION OF BINARY TO DECIMAL
Enter a Binary number: 1101
Decimal of Given Number is = 13
```

[9] **Compute the Average Grade and Its Equivalent Grade** - This code calculates the average grade based on marks entered for a specified number of subjects, and then assigns an equivalent grade based on predefined grade ranges, displaying "FAILED" if the average grade falls below 74..

```
Enter Number of Subjects: 4

Enter Marks for Subject 1: 89
Enter Marks for Subject 2: 93
Enter Marks for Subject 3: 94
Enter Marks for Subject 4: 90

Average Grade: 91.50
Equivalent Grade: 1.50
```

[10] **Number of Days converts to Years, Weeks and Days Vice Versa**- This code allows for the conversion of a number of days into years, weeks, and days, and vice versa, by prompting the user for input and performing the necessary calculations to display the converted values in both directions.

```
Enter the total days: 120
==============================
120 = 0 years,17 weeks,1 days
==============================
```

```
Enter Years: 3
Enter Weeks 15
Enter Days: 21
==============================
1221 = 3 years, 15 weeks, 21 days
==============================
```

[11] **Numerical Form of Dates converts to Textual or Sentence Form**- This code takes numerical input for a date (month, day, year) and converts it into a formatted textual sentence describing the date.

```
Enter the date in numerical form (3/27/1997)
Month (1-12): 9
Day (1-31): 29
Year: 2004
```

```
Numerical Form: 9/29/2004
Sentence Form: 29th of September 2004
```

```
Enter the date in numerical form (3/27/1997)
Month (1-12): 14
Day (1-31): 32
Year: 2005
```

```
Numerical Form: 14/32/2005
Sentence Form: (Invalid Days in a Month) (Invalid Month) 2005
```

[12] **Counting Vowels and Consonants in user's Full Name** - This code prompts the user to enter their full name, then counts and displays the number of vowels and consonants in the entered name.

```
Enter your Full Name: Simon Angeles
```

```
Full Name: Simon Angeles
Number of Vowels: 5
Number of Consonant: 7
```

[13] **Counting repeated letters in a sentence** - This code allows the user to input a sentence and then counts and displays the occurrences of each letter ('a' to 'z', case insensitive) in the sentence.

```
Enter a sentence: Hello World
d occured 1 times
e occured 1 times
h occured 1 times
l occured 3 times
o occured 2 times
r occured 1 times
w occured 1 times
```

[14] **Password Creation and Confirmation** - This code segment prompts the user to create a password consisting only of digits and confirms it with a maximum of three attempts. If the confirmation matches the initially entered password, it confirms success; otherwise, it notifies the user of a failed confirmation after exceeding the maximum attempts.

```
Create Password (Digits only): 12345
```

```
Warming: 3 Attempts to Confirm your Password!

Confirm your Password: 54321
```

```
Passwords do not match!
Confirm your Password: 12345
```

```
Password is Correct!
```

[15] **Birthday Zodiac Sign Finder**- This C program prompts the user to enter their birth month and day, then determines and prints their zodiac sign based on the input. The signs are checked against specific date ranges using conditional statements, and if the input does not match any valid date range, it outputs an error message indicating an invalid date.

```
************************************************
*                                              *
*           Welcome to Zodiac Finder           *
*                                              *
************************************************

Enter your birth month (1-12): 12
Enter your birth day (1-31): 15
Your zodiac sign is ♐ Sagittarius (Archer): November 22-December 21
```

[16] **Class Officers Selection**- This C program facilitates a classroom officers election by prompting the user to input their name, section, and the names of candidates for various positions.

```
*********************************************
* Welcome to the Classroom Officers Election!  *

*********************************************

Enter your name: Edmark
Enter your section: BSIT
Enter the name of the candidate for President: Uno
Enter the name of the candidate for Vice-President: Dos
Enter the name of the candidate for Secretary: Tres
Enter the name of the candidate for Treasurer: Quatro
Enter the name of the candidate for Auditor: Lima Jr
Enter the name of the candidate for Public Relations Officer (P.R.O): JP
Enter the name of the candidate for Muse: PJ
Enter the name of the candidate for Escort: JC
```

```
*********************************************
*          DETAILS OF ELECTION:             *

*********************************************

* Name: Edmark
* Section: BSIT

* Election Results:

* President Candidate: Uno
* Vice-President Candidate: Dos
* Secretary Candidate: Tres
* Treasurer Candidate: Quatro
* Auditor Candidate: Lima Jr
* Public Relations Officer (P.R.O) Candidate: JP
* Muse Candidate: PJ
* Escort Candidate: JC

*********************************************
* You have successfully voted!               *
* Thank you for voting!                      *

*********************************************
```

[17] **Concert Ticket Reservation**- This C program allows users to create and purchase tickets for a concert. The program also include the prize and the change of the user.

```
************************************************************
  Welcome to the Britney Spears Concert Ticket Reservation
************************************************************
Enter your name: Dexi
Enter the date of the concert (MM/DD/YYYY): 06232025
Enter the time of the concert: 7
Enter your preferred seat number: 52
```

```
************************************************************
  Welcome to the Britney Spears Concert Ticket Reservation
************************************************************

Ticket Price: PHP 1500.00

Enter amount paid in PHP: 2000
```

```
Change: PHP 500.00

------------------------------
     Concert Ticket
------------------------------
Name: Dexi
Concert: Britney Spears Concert
Date: 06232025
Time: 7
Seat Number: 52
------------------------------
Do you want to book another ticket? (yes/no):
```

[18] **Name Counter** - This C program counts and prints the number of non-space characters in a user-inputted name, utilizing loops and basic string handling functions.

```
==================================
  Welcome to the Name Counter!
==================================

Please enter your name: EDMARK KATIMBANG
```

```
==================================
  Welcome to the Name Counter!
==================================

Please enter your name: EDMARK KATIMBANG

==================================
 The number of characters in your
          name is: 15
==================================
```

[19] **Quote of the Day** - The code represent just a set of quote wherein user will input which quote they want. :)

```
1.The best and most beautiful things in the world cannot be seen or even
touched - they must be felt with the heart. -Helen Keller
2. The purpose of our lives is to be happy. - Dalai Lama
3. Your time is limited, so don't waste it living someone else's life. Do
n't be trapped by dogma - which is living with the results of other peopl
e's thinking. -Steve Jobs
4. The future belongs to those who believe in the beauty of their dreams.
 -Eleanor Roosevelt
5.  "Go confidently in the direction of your dreams! Live the life you've
 imagined." - Henry David Thoreau
6."Life is a succession of lessons which must be lived to be understood."
 - Ralph Waldo Emerson
7. Spread love everywhere you go. Let no one ever come to you without lea
ving happier. -Mother Teresa
8.It is during our darkest moments that we must focus to see the light. -
Aristotle
9. Success is not the key to happiness. Happiness is the key to success.
If you love what you are doing, you will be successful. - Albert Schweitz
er
10. The best way to predict the future is to invent it. - Alan Kay
```

```
Enter a quote of the day 1 to 10: 2
```

```
The purpose of our lives is to be happy. - Dalai Lama
```

[20] **Riddles Game**- This C program implements a two-player riddle game where players take turns creating riddles and guessing answers, accumulating scores based on correct answers.

```
**********************************
*  Welcome to the Riddle Game!:)  *
**********************************

Riddle Example: Butot balat lumilipad?
Answer: SARANGGOLA

Enter your Name Player 1: JC
Enter your Name Player 2: CJ
```

```
**********************************
*  Welcome to the Riddle Game!:)  *
**********************************

JC, Enter a riddle:
Tawag sa pusang malungkot?
Enter the answer:
malungCAT
```

```
**********************************
*  Welcome to the Riddle Game!:)  *
**********************************
CJ, guess the answer to the riddle:
Tawag sa pusang malungkot?
malungCAT
```

```
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
That's Correct! CJ gets a point.
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Scores:
JC: 0
CJ: 1

CJ, enter a riddle:
```