Jedsadaporn Pannok No. 66070503410

CPE100 Computer Programming for Engineers

Leb4

1) Write C program to “Output GCD (Greatest Common Divisor) of two input number

```c
#include <stdio.h>

int GCD(int a, int b) { //Used to calculate GCD.
    while (b != 0) {
        int sum = b; //Jedsadaporn Pannok No.66070503410
        printf("a = %d ", a);
        printf("b = %d\t", b);
        b = a % b;
        // Divide the number to find the remainder of the product between b and a.
        printf("mod = %d ", b);
        a = sum;
        printf ("sum = %d\n",a);
    }
    return a;
}//Jedsadaporn Pannok No.66070503410
int main (void) {
    int num1, num2;
    printf("Enter your numbers: ");
    scanf("%d %d", &num1, &num2);

    int gcd = GCD(num1, num2); //Call the GCD function

    printf("GCD of %d and %d is %d\n", num1, num2, gcd);  //show results

    return 0;
}//Jedsadaporn Pannok No.66070503410
```

2) Write C program to “Find Average of following input until type exit, if no input found print None”

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

int main(void) {
    char c[100]; //Jedsadaporn Pannok No.66070503410
    int i = 0;
    float sum = 0.0;
    int count = 0;

    // Configuration
    char messenger [] = "Enter your number or \"exit\" to quit: ";

    // Start a while loop to receive numbers or "exit" from the user
    while (strcmp(c, "exit") != 0) {
        printf("%s", messenger);
        scanf(" %s", c);

        int num;
        // If the value in c can be converted to a number
        if (sscanf(c, "%d", &num) == 1) {
            sum += num; // Add the num value to sum for calculating the average
            count++; // Increase count to keep track of the number of inputs
        } else if (strcmp(c, "exit") != 0) {//Jedsadaporn Pannok No.66070503410
            printf("Invalid data. Please %s\n", messenger); // Display a message for
incorrect input
        }
    }
//Jedsadaporn Pannok No.66070503410
    if (count != 0) {  // check if any numbers were entered
        printf("Average: %.2f\n", sum / count); // Calculate and print the average of
the entered numbers
    } else {
        printf("none\n");
    }

    return 0;
}
```

3) Write C program to “Tranform decimal number to Binary number”

```c
#include <stdio.h>

int main() {
    int decimal;
    int binary[100];
    int i = 0;
//Jedsadaporn Pannok No.66070503410
    printf("Enter your number: ");
    scanf("%d", &decimal);

    while (decimal > 0) { // Convert the integer to binary representation
        binary[i] = decimal % 2;

        decimal = decimal / 2;
        i++;
    }

    printf("results: ");
    for (int j = i - 1; j >= 0; j--) {  // Iterate through the 'binary' array in
reverse to print the binary digits
        printf("%d", binary[j]);
    }
    printf("\n");

    return 0;
}
```

4) Write C program to “Output Prime number from 2 to input number. There must only display 10 number per row”

```c
#include <stdio.h>
//Jedsadaporn Pannok No.66070503410
int main() {
    int num;

    printf("Enter a number: ");

    scanf("%d", &num);
//Jedsadaporn Pannok No.66070503410
    int count = 0, i = 0;

    while (i <= num) {   // Start a while loop that continues as long as i is less than or equal to num
        int isPrime = 1;
        if (i <= 1) {  // Check if i is less than or equal to 1
            isPrime = 0;
        } else {
            // If i is greater than 1, check if it's a prime number
            int b = 2;
            while (b * b <= i) {
                if (i % b == 0) {  // If i is divisible by b without a remainder, it's not a prime number
                    isPrime = 0;
                    break; //Exit the loop
                }
                b++;
            }
        }
        if (isPrime) {
            printf("%d ", i); // Print the value of i and increment the count
            count++;
            if (count % 10 == 0) {   // If count is a multiple of 10 start a new line
                printf("\n");
            }
        }
        i++;
    }//Jedsadaporn Pannok No.66070503410
    return 0;
}
```

Write C program to “Output the sum of the series [9 + 99 + 999 + ...]”

```c
#include <stdio.h>

int main() {
    int a;
    printf("enter your number: ");
    scanf("%d", &a);

    if (a <= 0) {  //Check if it is lower than 0, if lower then display a message.
        printf("Negative integers cannot be used.\n");
        return 1;
    }

    double sum = 0.0;
    double b = 9.0;

    for (int i = 1; i <= a; i++) {
        sum += b;
        printf("%.0f", b);  // Display the value of B without decimal places
        if (i < a) {
            printf(" + "); //Show plus sign
        } else {
            printf(" = %.0f\n", sum);  //show equal sign
        }
        b = b * 10 + 9;  // Update the value of 'b' to the next number
    }
    return 0;
}
```

6) The Great Pyramid of Giza is the largest Egyptian pyramid and the tomb of Fourth Dynasty pharaoh Khufu. Built in the early 26th century BC during a period of around 27 years, the pyramid is the oldest of the Seven Wonders of the Ancient World, and the only one to remain largely intact. The mighty P'Tum one of the best pharaoh in CPE also need The Pyramid.

```c
#include <stdio.h>

int main() {
    int n;
      //Jedsadaporn Pannok No.66070503410
    printf("Enter your number : ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {  // Print spaces
        for (int j = 1; j <= n - i; j++) {
            printf(" ");
        }
        printf("*"); // Print a star for the upper part
        if (i > 1) {// Print additional stars for the middle part
            for (int j = 1; j <= 2 * i - 3; j++) {
                printf("*");
            }
        }
        if (i > 1) {
            printf("*"); // Print a star for the upper part
        }
        printf("\n");
    }
//Jedsadaporn Pannok No.66070503410
    return 0;
}
```

7) It not COOL!!! , P’Tum said. “ I need a pyramid that look cool more than this!!!!”

Write C program to (Make P’Tum happy) “Output n floor pyramid with an asterisk while label each floor with number, n is input number”

```c
#include <stdio.h>

int main() {
    int n;
      //Jedsadaporn Pannok No.66070503410
    printf("Enter your number: ");
    scanf("%d", &n);

    for (int i = 1; i <= n; i++) {
        for (int j = 1; j <= n - i; j++) { // Print spaces before the numbers
            printf(" ");  // Print a space.
        }

        for (int j = 1; j <= i; j++) {   // Print the numbers for the current row.
            printf("%d", i);  // Print the current row number.
            if (j < i) { // Print a space except for the last number in the row.
                printf(" ");
            }
        }
        printf("\n");  // Move to the next line
    }

    return 0;
}
```