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**CPE100 Computer Programming for Engineers**

**Leb4**

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

*#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”

*#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”

*#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”

*#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 + ...... ]”

*#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.

*#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”

*#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;

}