IT110 – Introduction to Programming Lab

C Programming Examples
gcc compilers

• Many online versions of gcc compilers available which you can use for practice e.g.
  • [http://rextester.com/l/c_online_compiler_gcc](http://rextester.com/l/c_online_compiler_gcc)
  • [https://www.jdoodle.com/c-online-compiler](https://www.jdoodle.com/c-online-compiler)
  • [https://www.codechef.com/ide](https://www.codechef.com/ide)
• **Problem 1: Calculator** : User will provide you two numbers, you need to display/print their sum (+), product (*), quotient (/) and remainder (%)
# Problems 1: Calculator

```c
#include <stdio.h>

int main(void)
{
    int x, y, sum, product, quotient, remainder;
    printf("Enter the first value: ");
    scanf("%d", &x);
    printf("Enter the second value: ");
    scanf("%d", &y);
    printf("SUM=X+Y
PRODUCT=X*Y
QUOTIENT=X/Y
REMAINDER=X%Y
PRINT SUM
PRINT PRODUCT
PRINT QUOTIENT
PRINT REMAINDER
STOP
");
    return 0;
}
```
Problem 1: Calculator

```c
sum = x + y;
product = x * y;
quotient = x / y;
remainder = x % y;

printf("sum %d, product %d,
quotient %d, remainder %d", sum,
product, quotient, remainder);
}
```
Problem 2 – Gross Salary Problem

- You need to calculate Gross Salary of an employee based on the following criteria:
  1. If Basic Salary is less than 5000 then Dearness Allowance (DA) is 40% of Basic and House Rent Allowance (HRA) is 20% of Basic
  2. If Basic Salary is between 5001 to 10000 then Dearness Allowance (DA) is 35% of Basic and House Rent Allowance (HRA) is 17% of Basic
  3. If Basic Salary greater than 10,001 then Dearness Allowance (DA) is 30% of Basic and House Rent Allowance (HRA) is 15% of Basic
Problem 2 – Gross Salary Problem

```c
#include <stdio.h>

int main(void)
{
    int basic;
    float hra, da;

    printf("Enter the basic salary: ");
    scanf("%d", &basic);
```

```c
    return 0;
}
```
Problem 2 – Gross Salary Problem

if (basic < 5000)
{
    da = 0.4 * basic;
    hra = 0.2 * basic;
}
else if (basic >= 5001 && basic < 10000)
{
    da = 0.35 * basic;
    hra = 0.17 * basic;
}
else if (basic >= 10001) // optional
{
    da = 0.3 * basic;
    hra = 0.15 * basic;
}
printf("For Basic Salary %d, DA will be %f and HRA will be %f", basic, da, hra);
Problem 3 – Conversion Problem

• User will provide two inputs:
  • First input is, whether the user will enter temperature in Fahrenheit or Celsius. E.g. 1 – Temperature in Fahrenheit and 2 - Temperature in Celsius.
  • Second input is; the actual temperature value
  • You need to covert temperature value (i.e. 2nd input) from F to C or C to F depending on the first input
Problem 3 – Conversion Problem

#include <stdio.h>

int main(void)
{
    char input_temp_in;
    float input_temp, output_temp;

    printf("Enter your choice of input temperature -> F for Fahrenheit or C for Celsius: ");
    scanf("%c", &input_temp_in);
}
Problem 3 – Conversion Problem

if (input_temp_in == 'F' || input_temp_in == 'f')
{
    printf("Enter temperature in Fahrenheit: ");
    scanf("%f", &input_temp);

    output_temp = (input_temp - 32) * (5/9);
    printf("\nCelcius temperature is %f", output_temp);
}

```c

```
Problem 3 – Conversion Problem

else if (input_temp_in == 'C' ||
        input_temp_in == 'c')
{
    printf("Enter temperature in
Celcius: ");
    scanf("%f", &input_temp);

    output_temp = (input_temp * 9/5) + 32;
    printf ("\nFahrenheit
 temperature is %f", output_temp);
}
else
    {
        printf("Invalid input \%c", input_temp_in);
    }
}
Problems for practice

• Problem 4: Find the largest of the 3 numbers entered by user
• Problem 5: Check if a entered number is a positive even, positive odd, negative even or negative odd
• Problem 6: Check if user entered character is Vowel or Consonant