CSE-016 Programming Lab Assignment № 3

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Solutions begin from the second page.

1 Problems

1.1 Problem (1)

Write a program that reads in three integers and then determines and prints the **largest** and the **smallest** integers in the group.

Sample Run:
Input three integers: 4 5 3
5 is the largest, 3 is the Smallest

1.2 Problem (2)

Write a C program to read the **quantity**, **unit price** and **discount type** for any item.
Your program will calculate the net price according to the following table and then print out the quantity, unit price, discount type, net price.

Discount Type	Discount
1	10%
2	15%
Others	5%

Contents

1 Problems **1**
1.1 Problem (1) 1
1.2 Problem (2) 1

2 Solutions **2**
2.1 Solution to Problem (1) 2
2.1.1 Source Code 2
2.1.2 Outcome 2
2.2 Solution to Problem (2) 3
2.2.1 Source Code 3
2.2.2 Outcome 3
2.3 Evidence of Work (Screenshots) . 4
2.3.1 Problem 1 in CLion 4
2.3.2 Problem 2 in CLion 5
2.4 Specifications 5

3 Licenses **5**

2 Solutions

2.1 Solution to Problem (1)

2.1.1 Source Code

Program's `main.c` File – console input/output-oriented application to solve the problem

```c
#include <stdio.h>

int main()
{
  int n1, n2, n3, b, s;
  printf("Input three numbers: ");
  scanf("%d %d %d", &n1, &n2, &n3);
  // Only one comparison will evaluate to 1, the other two evaluate to 0
  b = n1*(n1 > n2 && n1 > n3);
  b += n2*(n2 > n1 && n2 > n3);
  b += n3*(n3 > n1 && n3 > n2);

  s = n1*(n1 < n2 && n1 < n3);
  s += n2*(n2 < n1 && n2 < n3);
  s += n3*(n3 < n1 && n3 < n2);

  printf("%d is the largest, %d is the Smallest.\n", b, s);

  return 0;
}
```

Please Note | Line numbers are only meant to improve readability.

2.1.2 Outcome

Test Input Samples

#1st	#2nd	#3rd
4	5	3

Obtained Results	Largest Number	Smallest Number
	5	3

The obtained results match the expected results.

Console Output

Program's output to console in plaintext – using inputs from test sample

```
Input three numbers: 4 5 3
5 is the largest, 3 is the Smallest.
```

2.2 Solution to Problem (2)

2.2.1 Source Code

Program's `main.c` File – console input/output-oriented application to solve the problem

```c
#include <stdio.h>
int main()
{
  int quantity,discount_type;
  float unit_price,net_price;
  printf("Enter the quantity of the item: ");
  scanf("%d", &quantity);
  printf("Enter the price per item: $");
  scanf("%f", &unit_price);
  printf("Enter the type of discount you have: ");
  scanf("%d", &discount_type);

  printf("\nQuantity: %d \t\t Unit Price: $%.2f \t ", quantity,unit_price);
  switch(discount_type)
  {
    case 1:
      net_price = (unit_price*quantity)*0.9;
      printf("Discount Type: 1 \t Net Price : $%.2f \n", net_price);
      break;
    case 2:
      net_price = (unit_price*quantity)*0.85;
      printf("Discount Type: 2 \t Net Price: $%.2f \n", net_price);
      break;
    default:
      net_price = (unit_price*quantity)*0.95;
      printf("Discount Type: Others \t Net Price: $%.2f \n", net_price);
      break;
  }
  return 0;
}
```

2.2.2 Outcome

Console Output

Program's output to console in plaintext – using inputs from test sample (2) in following page

```
Enter the quantity of the item: 9
Enter the price per item: $15.75
Enter the type of discount you have: 2

Quantity: 9      Unit Price: $15.75      Discount Type: 2    Net Price: $120.49
```

Test Input Samples

#	Quantity	Unit Price	Discount Type	Theoretical Net Price
(1)	4	9	1	32.40
(2)	9	15.75	2	120.4875
(3)	2	18	4	34.20

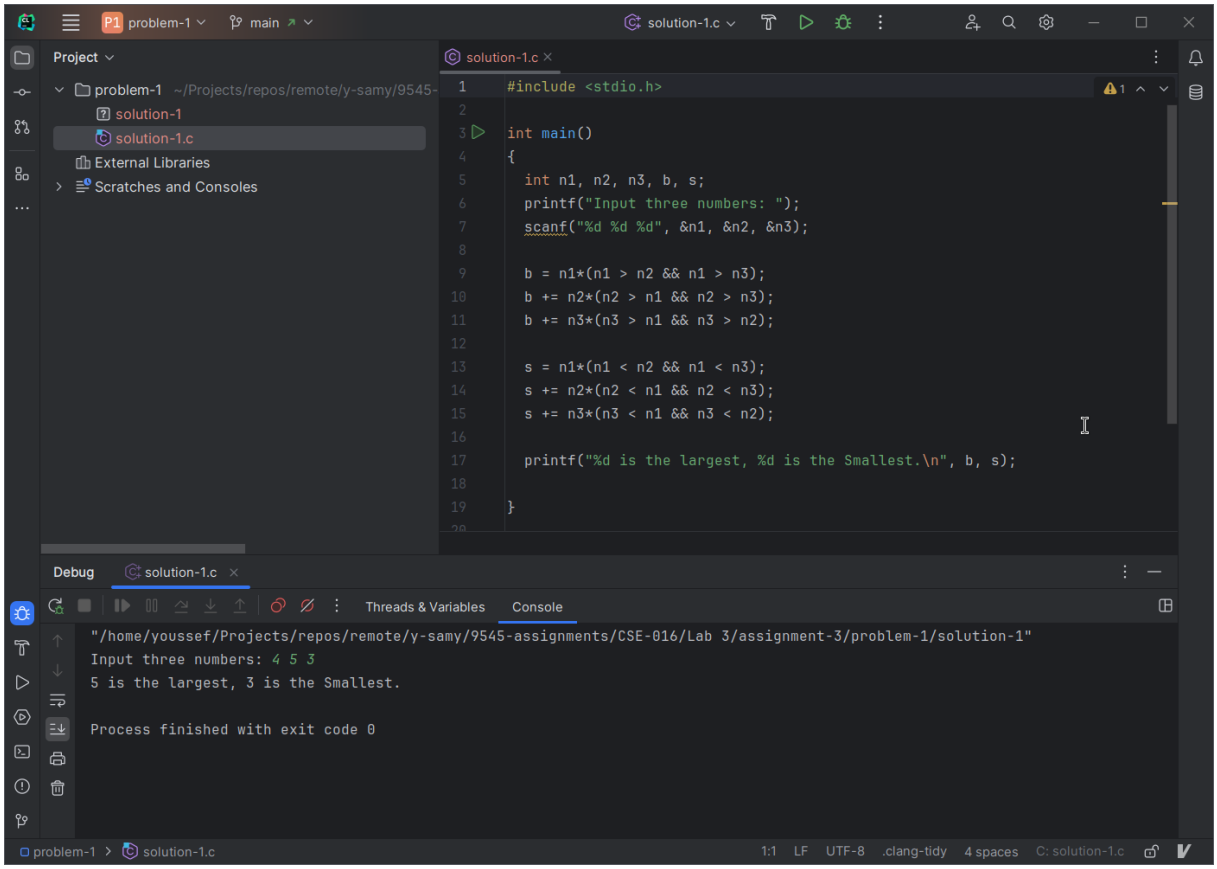
Obtained Results

#	Net Price
(1)	32.40
(2)	120.49
(3)	34.20

The obtained results equal the expected results rounded to 2 decimal points.

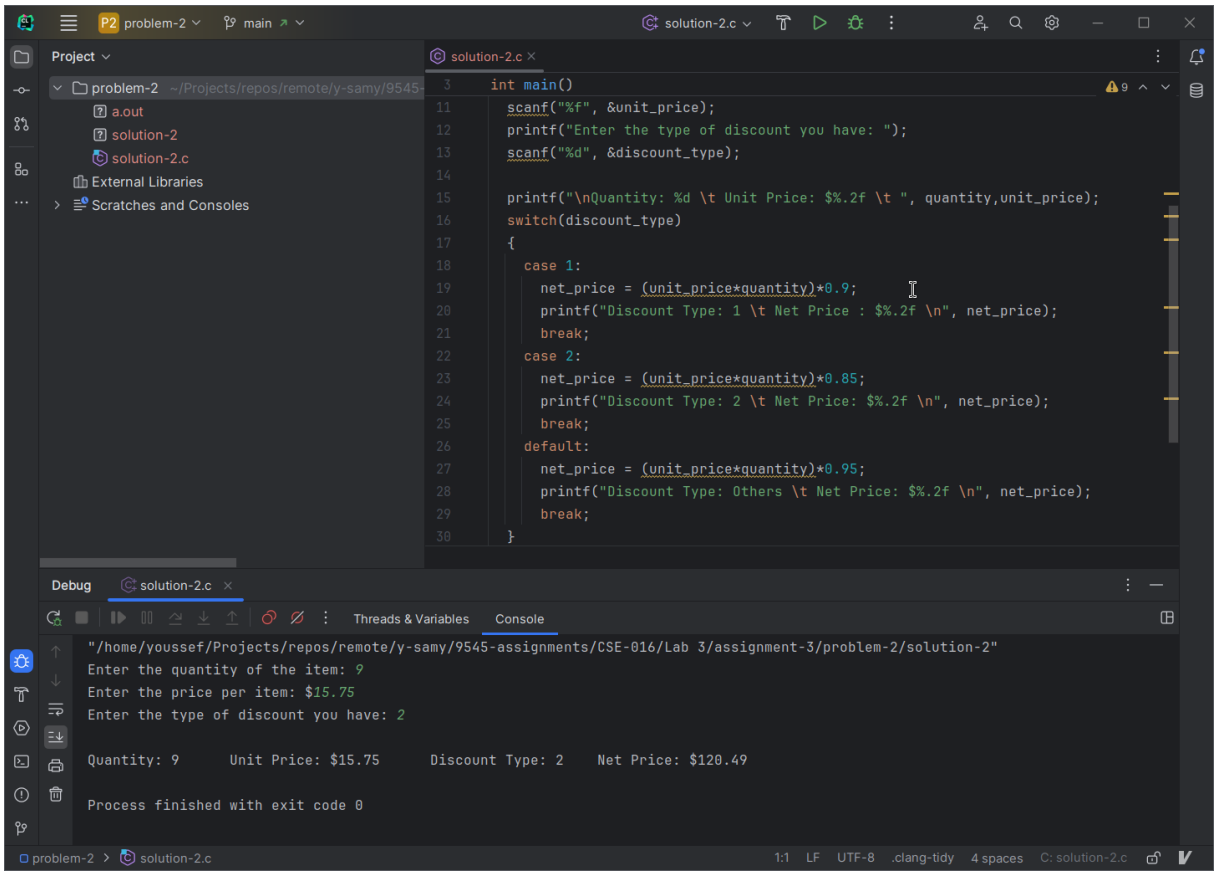
2.3 Evidence of Work (Screenshots)

2.3.1 Problem 1 in CLion



Turn over the page for the last screenshot

2.3.2 Problem 2 in CLion



2.4 Specifications

- **Libraries:**
  - `stdio.h`
- **Compiler:** GNU C Compiler (`gcc`) version 14.0.1 20240328 (Red Hat 14.0.1-0)
- **C Standard Compatibility**

P#	C89/C90	C99	C11	C17	C23
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓

- **Supported Platforms:** OS: (any), architecture: (any)
- **Tested On:** Fedora 40 Workstation Linux

3 Licenses