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Practice Problem 6

Task1:

Code:

```
#include<stdio.h>
int arithmetic_sum(int n, int a1, int d);

int main()
{
    int n,sum,a1,d;

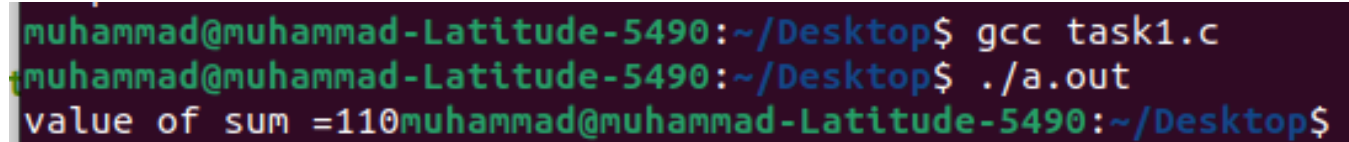
    a1 =2;
    d= 2;
    n= 10;

    arithmetic_sum(n,a1,d);

    printf("value of sum =%d",arithmetic_sum(n,a1,d));

    return 0;
}
int arithmetic_sum(int n, int a1, int d)
{
    int sum;
    sum = n/2 *(2*a1 +(n-1)*d);
    return sum;
}
```

Output:



```
muhammad@muhammad-Latitude-5490:~/Desktop$ gcc task1.c
muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
value of sum =110muhammad@muhammad-Latitude-5490:~/Desktop$
```

Task2:

Code:

```
#include<stdio.h>

int sumoftotalmarks(int math_marks, int science_marks, int english_marks);
float percentage(int total_marks);

int main()
{

    int s1_ID=123;
    int s1_math_marks= 79;
    int s1_science_marks= 63;
    int s1_english_marks =90;

    int s1_total_marks =sumoftotalmarks(s1_math_marks, s1_science_marks, s1_english_marks);
    float s1_percentage=percentage(s1_total_marks);

    int s2_ID=456;
    int s2_math_marks= 59;
    int s2_science_marks= 63;
    int s2_english_marks =70;

    int s2_total_marks =sumoftotalmarks(s2_math_marks, s2_science_marks, s2_english_marks);
    float s2_percentage=percentage(s2_total_marks);

    int s3_ID=789;
    int s3_math_marks= 65;
    int s3_science_marks= 39;
    int s3_english_marks =87;

    int s3_total_marks =sumoftotalmarks(s3_math_marks, s3_science_marks, s3_english_marks);
    float s3_percentage=percentage(s3_total_marks);

    printf("Student ID: %d\n", s1_ID);
    printf("Mathematics Marks: %d\n", s1_math_marks);
    printf("Science Marks: %d\n", s1_science_marks);
    printf("English Marks: %d\n", s1_english_marks);
    printf("Total Marks: %d\n", s1_total_marks);
    printf("Percentage: %.2f%%\n\n", s1_percentage);

    printf("Student ID: %d\n", s2_ID);
    printf("Mathematics Marks: %d\n", s2_math_marks);
    printf("Science Marks: %d\n", s2_science_marks);
    printf("English Marks: %d\n", s2_english_marks);
    printf("Total Marks: %d\n", s2_total_marks);
    printf("Percentage: %.2f%%\n\n", s2_percentage);
```

```

printf("Student ID: %d\n", s3_ID);
printf("Mathematics Marks: %d\n", s3_math_marks);
printf("Science Marks: %d\n", s3_science_marks);
printf("English Marks: %d\n", s3_english_marks);
printf("Total Marks: %d\n", s3_total_marks);
printf("Percentage: %.2f%%\n", s3_percentage);

return 0;
}
int sumoftotalmarks(int math_marks, int science_marks, int english_marks)
{
return math_marks + science_marks + english_marks;
}
float percentage(int total_marks)
{
return (total_marks *100)/ 300;
}

```

Output:

```

muhammad@muhammad-Latitude-5490:~/Desktop$ gcc task3.c
muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
Student ID: 123
Mathematics Marks: 79
Science Marks: 63
English Marks: 90
Total Marks: 232
Percentage: 77.00%

Student ID: 456
Mathematics Marks: 59
Science Marks: 63
English Marks: 70
Total Marks: 192
Percentage: 64.00%

Student ID: 789
Mathematics Marks: 65
Science Marks: 39
English Marks: 87
Total Marks: 191
Percentage: 63.00%
muhammad@muhammad-Latitude-5490:~/Desktop$

```

Task3:

Code:

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

float calculate_simple_interest(int customer_saving_account_balance);
float calculate_compound_interest(int customer_saving_account_balance);
float calculate_compound_interest_for_specific_year(int
customer_saving_account_balance, float interest_rate, int specific_year);

int main() {
    int customer_saving_account_balance, specific_year;
    float interest_rate;

    printf("Enter value of customer account balance: ");
    scanf("%d", &customer_saving_account_balance);

    float simpleInterest =
calculate_simple_interest(customer_saving_account_balance);
    printf("Value of simple interest is = %.2f\n", simpleInterest);

    float compoundInterest =
calculate_compound_interest(customer_saving_account_balance);
    printf("Value of compound interest for one year is = %.2f\n", compoundInterest);

    printf("Enter value of no of years: ");
    scanf("%d", &specific_year);

    printf("Enter value of interest rate: ");
    scanf("%f", &interest_rate);

    float compoundInterestSpecific =
calculate_compound_interest_for_specific_year(customer_saving_account_balance,
interest_rate, specific_year);
    printf("Value of compound interest for %d years is = %.2f\n", specific_year,
compoundInterestSpecific);

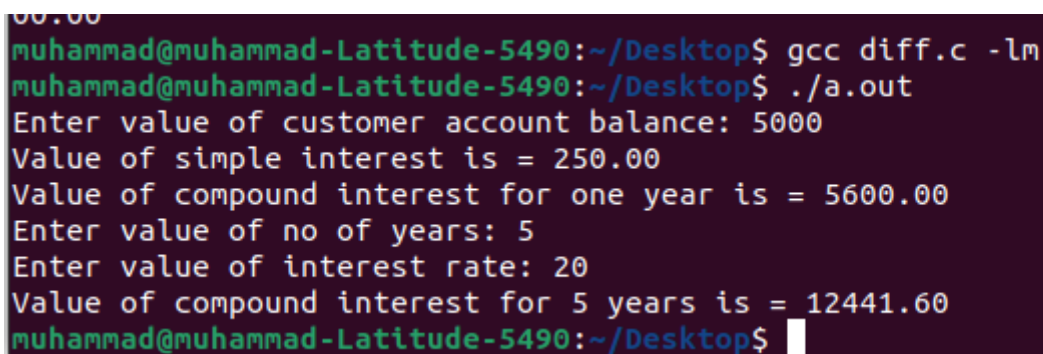
    return 0;
}

float calculate_simple_interest(int customer_saving_account_balance) {
    return (customer_saving_account_balance * 0.05 * 1) ;
}
```

```
float calculate_compound_interest(int customer_saving_account_balance) {  
    return (customer_saving_account_balance * pow((1 + 0.12 / 1),1* 1));  
}
```

```
float calculate_compound_interest_for_specific_year(int  
customer_saving_account_balance, float interest_rate, int specific_year) {  
    return customer_saving_account_balance * (pow((1 + interest_rate /  
100),specific_year));  
}
```

Output:

A terminal window with a dark purple background and green text. It shows the compilation and execution of a C program. The user enters a balance of 5000, and the program calculates a simple interest of 250.00 and a compound interest of 5600.00 for one year. Then, the user enters 5 years and a 20% interest rate, and the program calculates a compound interest of 12441.60 for 5 years.

```
00.00  
muhammad@muhammad-Latitude-5490:~/Desktop$ gcc diff.c -lm  
muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out  
Enter value of customer account balance: 5000  
Value of simple interest is = 250.00  
Value of compound interest for one year is = 5600.00  
Enter value of no of years: 5  
Enter value of interest rate: 20  
Value of compound interest for 5 years is = 12441.60  
muhammad@muhammad-Latitude-5490:~/Desktop$
```