Assignment No 5

Q1. Finding F from C (temp).

```
void process()
{
 float celsius, fahrenheit;
 printf("Enter temperature in Celsius: ");
 scanf("%f", &celsius);
 fahrenheit = (celsius * 9 / 5) + 32;
 printf("%.2fc is equal to %2f f\n", celsius, fahrenheit);
}
int main()
{
 process();
}
```

Q2. Finding area and perimeter of rectangle or circle.

```
void process() {
 int choice;
 float length, width, radius, area, perimeter;
 printf("Choose shape (1 for Rectangle, 2 for Circle): ");
 scanf("%d", &choice);
 if (choice == 1) {
 printf("Enter length: ");
 scanf("%f", &length);
 printf("Enter width: ");
 scanf("%f", &width);
 area = length * width;
 perimeter = 2 * (length + width);
 printf("Rectangle area: %.2f\n", area);
 printf("Rectangle perimeter: %.2f\n", perimeter);
```

```
 } else if (choice == 2) {
 printf("Enter radius: ");
 scanf("%f", &radius);
 area = 3.14 * radius * radius;
 perimeter = 2 * 3.14 * radius;
 printf("Circle area: %.2f\n", area);
 printf("Circle perimeter (circumference): %.2f\n", perimeter);
 } else {
 printf("Invalid choice!\n");
 }
}
int main() {
 process();
}
```

Q3. Accept a 3 digit number from user and find the
sum of the digits and also.
reverse the number.

```
void process() {
 int num, sum = 0, reverse = 0, remainder;
 printf("Enter a 3-digit number: ");
 scanf("%d", &num);
 while (num != 0) {
 remainder = num % 10;
 sum += remainder;
 num /= 10;
 }
 num = sum;
 while (num != 0) {
 remainder = num % 10;
```

```
 reverse = reverse * 10 + remainder;
 num /= 10;
 }
 printf("Sum of digits: %d\n", sum);
 printf("Reversed number: %d\n", reverse);
}
int main() {
 process();
}
```

Q4. Check if the given number is even or odd.

```
void process() {
 int num;
 printf("Enter a number: ");
 scanf("%d", &num);
 if (num % 2 == 0) {
 printf("%d is even\n", num);
 } else {
 printf("%d is odd\n", num);
 }
}
int main() {
 process();
}
```

Q5. Calculating total salary based on basic. If basic <=5000 da, ta and hra will be 10%,20% and 25% respectively otherwise da, ta and hra will be 15%,25% and 30% respectively.

```
void process() {
```

```
 float basic, da, ta, hra, total_salary;
 printf("Enter basic salary: ");
 scanf("%f", &basic);
 if (basic <= 5000) {
 da = basic * 0.10;
 ta = basic * 0.20;
 hra = basic * 0.25;
 } else {
 da = basic * 0.15;
 ta = basic * 0.25;
 hra = basic * 0.30;
 }
 total_salary = basic + da + ta + hra;
 printf("Basic Salary: %.2f\n", basic);
 printf("DA: %.2f\n", da);
 printf("TA: %.2f\n", ta);
 printf("HRA: %.2f\n", hra);
 printf("Total Salary: %.2f\n", total_salary);
}
int main() {
 process();
}
```

Q6. Write a program to check if person is eligible to marry or not (male age >=21 and female age>=18.

```
void process() {
 int age;
 char gender;
 printf("Enter age: ");
 scanf("%d", &age);
```

```
 printf("Enter gender (M/F): ");
 scanf(" %c", &gender);
 if ((gender == 'M' && age >= 21) || (gender == 'F' && age >= 18))
{
 printf("Eligible to marry\n");
 } else {
 printf("Not eligible to marry\n");
 }
}
int main() {
 process();
}
```

Q7. Find the price of item when discount is given
(specify different discount based on
price)

```
void process() {
 float price, discount, final_price;
 printf("Enter original price: ");
 scanf("%f", &price);
 if (price <= 1000) {
 discount = price * 0.05;
 } else if (price <= 5000) {
 discount = price * 0.10;
 } else {
 discount = price * 0.15;
 }
 final_price = price - discount;
 printf("Original Price: %.2f\n", price);
 printf("Discount: %.2f\n", discount);
```

```
 printf("Final Price: %.2f\n", final_price);
}
int main() {
 process();
}
```

Q8. Write a program to find greatest of three numbers using nested if-else.

```
void process() {
 int num1, num2, num3;
 printf("Enter first number: ");
 scanf("%d", &num1);
 printf("Enter second number: ");
 scanf("%d", &num2);
 printf("Enter third number: ");
 scanf("%d", &num3);
 if (num1 >= num2 && num1 >= num3) {
 printf("%d is the greatest\n", num1);
 } else if (num2 >= num1 && num2 >= num3) {
 printf("%d is the greatest\n", num2);
 } else {
 printf("%d is the greatest\n", num3);
 }
}
int main() {
 process();
}
```

Q9. Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```
void process() {
 int num1, num2;
 char operator;
 printf("Enter first number: ");
 scanf("%d", &num1);
 printf("Enter operator (+, -, *, /, %%): ");
 scanf(" %c", &operator);
 printf("Enter second number: ");
 scanf("%d", &num2);
 switch (operator) {
 case '+':
 printf("%d + %d = %d\n", num1, num2, num1 + num2);
 break;
 case '-':
 printf("%d - %d = %d\n", num1, num2, num1 - num2);
 break;
 case '*':
 printf("%d * %d = %d\n", num1, num2, num1 * num2);
 break;
 case '/':
 if (num2 != 0) {
 printf("%d / %d = %d\n", num1, num2, num1 / num2);
 } else {
 printf("Error: Division by zero!\n");
 }
 break;
 case '%':
 if (num2 != 0) {
 printf("%d %% %d = %d\n", num1, num2, num1 % num2);
```

```
 } else {
 printf("Error: Division by zero!\n");
 }
 break;
 default:
 printf("Invalid operator!\n");
 }
}
int main() {
 process();
}
```

Q10. Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice, then based on that perform the desired operations.

```
void process() {
 int choice;
 printf("1. Even Odd\n");
 printf("2. Basic Salary\n");
 printf("3. Greatest of Three Numbers\n");
 printf("4. Arithmetic Operations\n");
 printf("Enter your choice: ");
 scanf("%d", &choice);
 switch (choice) {
 case 1: {
 int num;
 printf("Enter a number: ");
 scanf("%d", &num);
 if (num % 2 == 0) {
```

```
printf("%d is even\n", num);
} else {
printf("%d is odd\n", num);
}
break;
}
case 2: {
float basic;
printf("Enter basic salary: ");
scanf("%f", &basic);
float da = basic * 0.10;
float ta = basic * 0.20;
float hra = basic * 0.25;
float total = basic + da + ta + hra;
printf("Total salary: %.2f\n", total);
break;
}
case 3: {
int num1, num2, num3;
printf("Enter first number: ");
scanf("%d", &num1);
printf("Enter second number: ");
scanf("%d", &num2);
printf("Enter third number: ");
scanf("%d", &num3);
if (num1 >= num2 && num1 >= num3) {
printf("%d is the greatest\n", num1);
} else if (num2 >= num1 && num2 >= num3) {
printf("%d is the greatest\n", num2);
```

```
} else {
printf("%d is the greatest\n", num3);
}
break;
}
case 4: {
int num1, num2;
char operator;
printf("Enter first number: ");
scanf("%d", &num1);
printf("Enter operator (+, -, *, /, %%): ");
scanf(" %c", &operator);
printf("Enter second number: ");
scanf("%d", &num2);
switch (operator) {
case '+':
printf("%d + %d = %d\n", num1, num2, num1 + num2);
break;
case '-':
printf("%d - %d = %d\n", num1, num2, num1 - num2);
break;
case '*':
printf("%d * %d = %d\n", num1, num2, num1 * num2);
break;
case '/':
if (num2 != 0) {
printf("%d / %d = %d\n", num1, num2, num1 / num2);
} else {
printf("Error: Division by zero!\n");
```

```
}
break;
case '%':
if (num2 != 0) {
printf("%d %% %d = %d\n", num1, num2, num1 % num2);
} else {
printf("Error: Division by zero!\n");
}
break;
default:
printf("Invalid operator!\n");
}
break;
}
default:
printf("Invalid choice!\n");
}
}
int main() {
process();
}
```

Q11.Accept the price from user. Ask the user if he is a student (user may say yes or no). If he is a student and he has purchased more than 500 than discount is 20% otherwise discount is 10%. But if he is not a student then if he has purchased more than 600 discount is 15% otherwise there is not discount.

```
void process() {
```

```
 float price;
 char isStudent[10];
 printf("Enter price: ");
 scanf("%f", &price);
 printf("Are you a student? (yes/no): ");
 scanf("%s", isStudent);
 if (strcmp(isStudent, "yes") == 0) {
 if (price > 500) {
 printf("Discount: 20%%\n");
 printf("Amount to pay: %.2f\n", price * 0.80);
 } else {
 printf("Discount: 10%%\n");
 printf("Amount to pay: %.2f\n", price * 0.90);
 }
 } else {
 if (price > 600) {
 printf("Discount: 15%%\n");
 printf("Amount to pay: %.2f\n", price * 0.85);
 } else {
 printf("No discount\n");
 printf("Amount to pay: %.2f\n", price);
 }
 }
}
int main() {
 process()
}
```

Q12. Print numbes from 1 to 10.

```
void process() {
```

```
 int i;
 for (i = 1; i <= 10; i++) {
 printf("%d\n", i);
 }
}
int main() {
 process();
}
```

Q13. Print table for the given number.

```
void process() {
 int num;
 printf("Enter a number: ");
 scanf("%d", &num);
 printf("Multiplication table for %d:\n", num);
 for (int i = 1; i <= 10; i++) {
 printf("%d * %d = %d\n", num, i, num * i);
 }
}
int main() {
 process();
}
```

Q14. Calculate sum of numbers in the given range.

```
void process() {
 int start, end, sum = 0;
 printf("Enter start of range: ");
 scanf("%d", &start);
 printf("Enter end of range: ");
 scanf("%d", &end);
 for (int i = start; i <= end; i++) {
```

```
 sum += i;
 }
 printf("Sum of numbers in range [%d, %d]: %d\n", start, end,
sum);
}
int main() {
 process();
}
```

Q15. Check number is prime or not.

```
void process() {
 int num;
 printf("Enter a number: ");
 scanf("%d", &num);
 int isPrime = 1;
 for (int i = 2; i <= num / 2; i++) {
 if (num % i == 0) {
 isPrime = 0;
 break;
 }
 }
 if (isPrime && num != 1) {
 printf("%d is a prime number\n", num);
 } else {
 printf("%d is not a prime number\n", num);
 }
}
int main() {
 process();
}
```

Q16. Check number is armstrong or not?

```
void process() {
 int num, original, sum = 0, digit;
 printf("Enter a number: ");
 scanf("%d", &num);
 original = num;
 while (num != 0) {
 digit = num % 10;
 sum += digit * digit * digit;
 num /= 10;
 }
 if (sum == original) {
 printf("%d is an Armstrong number\n", original);
 } else {
 printf("%d is not an Armstrong number\n", original);
 }
}
int main() {
 process();
}
```

Q17. Check number is perfect or not.

```
void process() {
 int num, sum = 0, i;
 printf("Enter a number: ");
 scanf("%d", &num);
 for (i = 1; i < num; i++) {
 if (num % i == 0) {
 sum += i;
 }
```

```
 }
 if (sum == num) {
 printf("%d is a perfect number\n", num);
 } else {
 printf("%d is not a perfect number\n", num);
 }
}
int main() {
 process();
}
```

Q18. Find factorial of number.

```
void process() {
 int num;
 printf("Enter a number: ");
 scanf("%d", &num);
 long factorial = 1;
 for (int i = 1; i <= num; i++) {
 factorial *= i;
 }
 printf("Factorial of %d: %ld\n", num, factorial);
}
int main() {
 process();
}
```

Q19. Check number is strong or not.

```
void process() {
 int num, sum = 0, digit, factorial, temp;
 printf("Enter a number: ");
 scanf("%d", &num);
```

```
 temp = num;
 while (temp != 0) {
 digit = temp % 10;
 factorial = 1;
 for (int i = 1; i <= digit; i++) {
 factorial *= i;
 }
 sum += factorial;
 temp /= 10;
 }
 if (sum == num) {
 printf("%d is a strong number\n", num);
 } else {
 printf("%d is not a strong number\n", num);
 }
}
int main() {
 process();
}
```

Q20. Check the given number is palindrome or not?

```
void process() {
 int num, reversed = 0, temp;
 printf("Enter a number: ");
 scanf("%d", &num);
 temp = num;
 while (temp != 0) {
 reversed = reversed * 10 + temp % 10;
 temp /= 10;
 }
```

```
 if (reversed == num) {
 printf("%d is a palindrome number\n", num);
 } else {
 printf("%d is not a palindrome number\n", num);
 }
}
int main() {
 process();
}
```

Q21. Add the (first and last) digit of a given number?

```
void process() {
 int num, first, last, sum;
 printf("Enter a number: ");
 scanf("%d", &num);
 last = num % 10;
 first = num;
 while (first >= 10) {
 first /= 10;
 }
 sum = first + last;
 printf("Sum of first and last digit: %d\n", sum);
}
int main() {
 process();
}
```

Q22. Print armstrong number in the the given range 1 to n?

```
void process() {
 int num, start, end, sum, digit, temp;
```

```
 printf("Enter the range (start and end): ");
 scanf("%d %d", &start, &end);
 printf("Armstrong numbers in the range [%d, %d]:\n", start, end);
 for (num = start; num <= end; num++) {
 sum = 0;
 temp = num;
 while (temp != 0) {
 digit = temp % 10;
 sum += digit * digit * digit;
 temp /= 10;
 }
 if (sum == num) {
 printf("%d\n", num);
 }
 }}
int main() {
 process();
}
```

Q23. Print prime number in the given range 1 to n?

```
void process() {
 int num, start, end, i, isPrime;
 printf("Enter the range (start and end): ");
 scanf("%d %d", &start, &end);
 printf("Prime numbers in the range [%d, %d]:\n", start, end);
 for (num = start; num <= end; num++) {
 isPrime = 1;
 for (i = 2; i <= num / 2; i++) {
 if (num % i == 0) {
 isPrime = 0;
```

```
 break;
 }
 }
 if (isPrime && num != 1) {
 printf("%d\n", num);
 }
 }
}
int main() {
 process();
}
```

Q24. check perfect number in the given range 1 to n?

```
void process() {
 int num, start, end, sum, i;
 printf("Enter the range (start and end): ");
 scanf("%d %d", &start, &end);
 printf("Perfect numbers in the range [%d, %d]:\n", start, end);
 for (num = start; num <= end; num++) {
 sum = 0;
 for (i = 1; i < num; i++) {
 if (num % i == 0) {
 sum += i;
 }
 }
 if (sum == num) {
 printf("%d\n", num);
 }
 }}
int main() {
```

```
 process();
}
```

Q25. check strong number in the given range 1 to n?

```
void process() {
 int num, start, end, sum, digit, factorial, temp;
 printf("Enter the range (start and end): ");
 scanf("%d %d", &start, &end);
 printf("Strong numbers in the range [%d, %d]:\n", start, end);
 for (num = start; num <= end; num++) {
 sum = 0;
 temp = num;
 while (temp != 0) {
 digit = temp % 10;
 factorial = 1;
 for (int i = 1; i <= digit; i++) {
 factorial *= i;
 }
 sum += factorial;
 temp /= 10;
 }
 if (sum == num) {
 printf("%d\n", num);
 }
 }
}
int main() {
 process();
}
```

Q26. Print fibonacci series?(optional)

```
void process() {
 int n, a = 0, b = 1, next;
 printf("Enter the number of terms: ");
 scanf("%d", &n);
 printf("Fibonacci series:\n");
 for (int i = 1; i <= n; i++) {
 printf("%d\n", a);
 next = a + b;
 a = b;
 b = next;
 }
}
int main() {
 process();
}
```