

Advance Coding

Week 1

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1. Program to calculate sum of digits of a number

main.c	Output
<pre>1 // 1. Program to calculate sum of digits of a number 2 #include <stdio.h> 3 int main() { 4 int num, sum = 0; 5 printf("Enter a number: "); 6 scanf("%d", &num); 7 while (num != 0) { 8 sum += num % 10; 9 num /= 10; 10 } 11 printf("Sum of digits: %d\n", sum); 12 return 0; 13 } 14</pre>	<pre>Enter a number: 2 Sum of digits: 2 === Code Execution Successful ===</pre>

2. Program to find first and last digit of a number

main.c	Output
<pre>1 // 2. Program to find first and last digit of a number 2 #include <stdio.h> 3 int main() { 4 int num, first, last; 5 printf("Enter a number: "); 6 scanf("%d", &num); 7 last = num % 10; 8 while (num >= 10) { 9 num /= 10; 10 } 11 first = num; 12 printf("First digit: %d, Last digit: %d\n", first, last); 13 return 0; 14 }</pre>	<pre>Enter a number: 10 First digit: 1, Last digit: 0 === Code Execution Successful ===</pre>

3. Program to find sum of first and last digit of a number

main.c	Output
<pre>1 // 3. Program to find sum of first and last digit of a number 2 #include <stdio.h> 3 int main() { 4 int num, first, last; 5 printf("Enter a number: "); 6 scanf("%d", &num); 7 last = num % 10; 8 while (num >= 10) { 9 num /= 10; 10 } 11 first = num; 12 printf("Sum of first and last digit: %d\n", first + last); 13 return 0; 14 } 15 16</pre>	<pre>Enter a number: 5 Sum of first and last digit: 10 === Code Execution Successful ===</pre>

4. Program to swap first and last digits of a number

main.c	Output
<pre>1 // 4. Program to swap first and last digits of a number 2 #include <stdio.h> 3 #include <math.h> 4 int main() { 5 int num, first, last, digits, swappedNum; 6 printf("Enter a number: "); 7 scanf("%d", &num); 8 digits = (int)log10(num); 9 first = num / (int)pow(10, digits); 10 last = num % 10; 11 swappedNum = last * (int)pow(10, digits) + (num % (int)pow(10, digits)) / 10 * 10 + first; 12 printf("Number after swapping first and last digits: %d\n", swappedNum); 13 return 0; 14 }</pre>	<pre>Enter a number: 12 Number after swapping first and last digits: 21 === Code Execution Successful ===</pre>

5. Program to find frequency of each digit in a given integer

main.c	Output
<pre>1 2 // 5. Program to find frequency of each digit in a given integer 3 #include <stdio.h> 4 int main() { 5 int num, digit, frequency[10] = {0}; 6 printf("Enter a number: "); 7 scanf("%d", &num); 8 while (num != 0) { 9 digit = num % 10; 10 frequency[digit]++; 11 num /= 10; 12 } 13 printf("Digit frequencies:\n"); 14 for (int i = 0; i < 10; i++) { 15 if (frequency[i] > 0) { 16 printf("%d: %d\n", i, frequency[i]); 17 } 18 } 19 return 0; 20 } 21</pre>	<pre>Enter a number: 12 Number after swapping first and last digits: 21 === Code Execution Successful ===</pre>

6. Program to enter a number and print it in words

main.c	Output
<pre>1 // 6. Program to enter a number and print it in words 2 #include <stdio.h> 3 void printWords(int num) { 4 if (num == 0) 5 return; 6 printWords(num / 10); 7 switch (num % 10) { 8 case 0: printf("Zero "); break; 9 case 1: printf("One "); break; 10 case 2: printf("Two "); break; 11 case 3: printf("Three "); break; 12 case 4: printf("Four "); break; 13 case 5: printf("Five "); break; 14 case 6: printf("Six "); break; 15 case 7: printf("Seven "); break; 16 case 8: printf("Eight "); break; 17 case 9: printf("Nine "); break; 18 } 19 } 20 int main() { 21 int num; 22 printf("Enter a number: "); 23 scanf("%d", &num); 24 if (num == 0) 25 printf("Zero"); 26 else 27 printWords(num); 28 printf("\n"); 29 return 0; 30 } 31</pre>	<pre>Enter a number: 10 One Zero === Code Execution Successful ===</pre>

7. Program to find one’s complement of a binary number

main.c	Output
<pre>1 // 7. Program to find one's complement of a binary number 2 #include <stdio.h> 3 #include <string.h> 4 int main() { 5 char binary[32]; 6 printf("Enter a binary number: "); 7 scanf("%s", binary); 8 printf("One's complement: "); 9 for (int i = 0; binary[i] != '\0'; i++) { 10 printf("%c", binary[i] == '0' ? '1' : '0'); 11 } 12 printf("\n"); 13 return 0; 14 } 15</pre>	<pre>Enter a binary number: 1010 One's complement: 0101 === Code Execution Successful ===</pre>

8. Program to find two's complement of a binary number

main.c	Output
<pre>1 // 8. Program to find two's complement of a binary number 2 #include <stdio.h> 3 #include <string.h> 4 int main() { 5 char binary[32], ones[32]; 6 int len, carry = 1; 7 printf("Enter a binary number: "); 8 scanf("%s", binary); 9 len = strlen(binary); 10 for (int i = 0; i < len; i++) { 11 ones[i] = binary[i] == '0' ? '1' : '0'; 12 } 13 ones[len] = '\0'; 14 for (int i = len - 1; i >= 0; i--) { 15 if (ones[i] == '1' && carry == 1) { 16 ones[i] = '0'; 17 } else if (carry == 1) { 18 ones[i] = '1'; 19 carry = 0; 20 } 21 } 22 printf("Two's complement: %s\n", ones); 23 return 0; 24 } 25</pre>	<pre>Enter a binary number: 101010 Two's complement: 010110 === Code Execution Successful ===</pre>

9. Program to convert Decimal to Hexadecimal number system

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main.c
1 // 9. Program to convert Decimal to Hexadecimal number system
2 #include <stdio.h>
3 int main() {
4     int num;
5     printf("Enter a decimal number: ");
6     scanf("%d", &num);
7     printf("Hexadecimal: %X\n", num);
8     return 0;
9 }

Enter a decimal number: 12424323
Hexadecimal: BD9483

...Program finished with exit code 0
Press ENTER to exit console.
```