# PRACTICAL 5

## SECTION A

1)

(while) int main() { int num = 0;

while (num <= 100) { printf("%d ", num); num++;

}

(Do while)

int main() { int num = 0;

do { printf("%d ", num); num++;

} while (num <= 100);

(for) int main() { for (int num = 0; num <= 100; num++) { printf("%d ", num);

}

2) int main() { int marks[10];

int total = 0; float average;

printf("Enter 10 marks:\n"); for (int i = 0; i < 10; i++) { printf("Mark %d: ", i + 1); scanf("%d", &marks[i]); total += marks[i];

}

average = total / 10.0;

printf("Total marks: %d\n", total); printf("Average marks: %.2f\n", average);

if (average < 50) { printf("Fail!\n");

} else { printf("Pass!\n");

}

1. int main() { int number; unsigned long long factorial = 1;

printf("Enter a number: "); scanf("%d", &number);

if (number < 0) { printf("Error: Factorial is not defined for negative numbers.\n");

} else { for (int i = 1; i <= number; i++) { factorial \*= i;

}

printf("Factorial of %d is %llu\n", number, factorial);

}

1. int main() { int number; int sum = 0;

printf("Enter a number: "); scanf("%d", &number);

int originalNumber = number;

while (number != 0) { int digit = number % 10; sum += digit; number /= 10;

}

printf("Sum of digits of %d is %d\n", originalNumber, sum);

1. int main() { int number; int reversedNumber = 0;

printf("Enter a number: "); scanf("%d", &number);

int originalNumber = number;

do {

int digit = number % 10; reversedNumber = reversedNumber \* 10 + digit; number /= 10;

} while (number != 0);

printf("Reversed number of %d is %d\n", originalNumber, reversedNumber);

1. 7) int main() { int n1 = 0, n2 = 1, next;

printf("First 10 numbers of the Fibonacci sequence:\n");

for (int i = 1; i <= 10; ++i) { printf("%d ", n1); next = n1 + n2; n1 = n2; n2 = next;

}

8)

int isArmstrong(int number) { int originalNumber, remainder, result = 0, n = 0;

originalNumber = number;

while (originalNumber != 0) { originalNumber /= 10;

++n;

}

originalNumber = number;

while (originalNumber != 0) { remainder = originalNumber % 10; result += pow(remainder, n); originalNumber /= 10;

}

if (result == number)

return 1; else return 0;

}

int main() { int number;

printf("Enter a number: "); scanf("%d", &number);

if (isArmstrong(number)) printf("%d is an Armstrong number.\n", number);

else

printf("%d is not an Armstrong number.\n", number);

1. int main() { printf("ASCII values for letters A to Z:\n"); for (char c = 'A'; c <= 'Z'; ++c) { printf("%c: %d\n", c, c);

}

1. int main() { int rows = 5;

for (int i = 1; i <= rows; ++i) { for (int j = 1; j <= i; ++j) { printf("\*");

}

printf("\n");

}

1. int isPrime(int number) { if (number <= 1) { return 0;

}

for (int i = 2; i \* i <= number; ++i) { if (number % i == 0) { return 0;

}

}

return 1;

}

int main() { int number;

printf("Enter a number: "); scanf("%d", &number);

if (isPrime(number)) { printf("%d is a prime number.\n", number);

} else {

printf("%d is not a prime number.\n", number);

}

12) void printFactors(int number) { printf("Factors of %d are:\n", number);

for (int i = 1; i <= number; ++i) { if (number % i == 0) {

printf("%d ", i);

}

}

printf("\n");

}

int main() { int number;

printf("Enter an integer: ");

scanf("%d", &number);

printFactors(number);

return 0;

1. int main() { int number, sum = 0;

printf("Enter numbers to add (enter -1 to stop):\n");

while (1) { scanf("%d", &number);

if (number == -1) {

break;

}

sum += number;

}

printf("The sum is: %d\n", sum);

1. int main() { int array[10]; printf("Enter 10 integers:\n");

for (int i = 0; i < 10; ++i) { scanf("%d", &array[i]);

}

printf("The array is: ");

for (int i = 0; i < 10; ++i) { printf("%d ", array[i]);

}

printf("\n");

1. int main() { int array[10]; int count = 0;

printf("Enter 10 integers:\n");

for (int i = 0; i < 10; ++i) { scanf("%d", &array[i]);

}

for (int i = 0; i < 10; ++i) { if (array[i] % 2 == 0) { count++;

}

}

printf("The count of even numbers in the array is: %d\n", count);

## Section B

1) int main() { int number; int positiveCount = 0, negativeCount = 0, zeroCount = 0;

printf("Enter 10 numbers:\n");

for (int i = 0; i < 10; ++i) {

scanf("%d", &number);

if (number > 0) { positiveCount++; } else if (number < 0) { negativeCount++;

} else {

zeroCount++;

}

}

printf("Positive numbers: %d\n", positiveCount); printf("Negative numbers: %d\n", negativeCount); printf("Zero numbers: %d\n", zeroCount);

2) int main() { int marks[10];

int sum = 0, maximum, minimum;

printf("Enter marks of 10 students:\n");

for (int i = 0; i < 10; ++i) {

scanf("%d", &marks[i]); sum += marks[i];

if (i == 0) {

maximum = minimum = marks[i];

} else { if (marks[i] > maximum) { maximum = marks[i];

}

if (marks[i] < minimum) { minimum = marks[i];

}

}

}

double average = (double) sum / 10;

printf("Maximum marks: %d\n", maximum); printf("Minimum marks: %d\n", minimum); printf("Average marks: %.2f\n", average);

3) int main() { double prices[10]; int count = 0; double sum = 0;

printf("Enter prices of 10 items:\n");

for (int i = 0; i < 10; ++i) { scanf("%lf", &prices[i]);

sum += prices[i];

if (prices[i] > 200) { count++;

}

}

double average = sum / 10;

printf("Average value of an item: %.2f\n", average); printf("Number of items with price > 200: %d\n", count);

4) int main() { int employeeNo; double basicSalary; int count = 0;

printf("Enter employee number and basic salary (end with -999 for employee number):\n");

while (1) {

scanf("%d", &employeeNo);

if (employeeNo == -999) {

break;

}

scanf("%lf", &basicSalary);

if (basicSalary >= 5000) { count++;

}

}

printf("Number of employees with basic salary >= 5000: %d\n", count);

5) int main() { int employeeNo; int hoursWorked; int count = 0;

int overtimeExceeding4000 = 0;

printf("Enter employee number and hours worked (end with -999 for employee number):\n"); while (1) { scanf("%d", &employeeNo);

if (employeeNo == -999) {

break;

}

scanf("%d", &hoursWorked);

int overtimeHours = hoursWorked - 40;

int overtimePayment = overtimeHours > 0 ? (overtimeHours \* 200) + (40 \* 150) : hoursWorked \* 150;

printf("Employee number: %d\n", employeeNo); printf("Overtime payment: %d\n", overtimePayment);

if (overtimePayment > 4000) { overtimeExceeding4000++;

}

count++;

}

double percentage = (double) overtimeExceeding4000 / count \* 100;

printf("Percentage of employees with overtime payment > Rs. 4000: %.2f%%\n", percentage);