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| **Experiment 2** | |
| **AIM :** | **To learn and understand Static and Dynamic Linking** |
| **Discussion & Output:** | **1. Arithmetic.c**  #include<stdio.h>  // functions declaration  int add(int n1, int n2);  int subtract(int n1, int n2);  int multiply(int n1, int n2);  int divide(int n1, int n2);  // function to add two integer numbers  int add(int n1, int n2)  {  int result;  result = n1 + n2;  return result;  }  // function to subtract two integer numbers  int subtract(int n1, int n2)  {  int result;  result = n1 - n2;  return result;  }  // function to multiply two integer numbers  int multiply(int n1, int n2)  {  int result;  result = n1 \* n2;  return result;  }  // function to divide two integer numbers  int divide(int n1, int n2)  {  int result;  result = n1 / n2;  return result;  }  **2. log.c**  # include <stdio.h>  # include <math.h>  double natural\_log(int value)  {  return natural\_log(value);  }  double log\_base\_10(int value)  {  return log\_base\_10(value);  }  **3. trigo.c**  # include <stdio.h>  # include <math.h>  double sine(int value){  double key = M\_PI\*value/180;  return sine(key);  }  double cosine(int value){  double key = M\_PI\*value/180;  return cosine(key);  }  double tangent(int value){  double key = M\_PI\*value/180;  return tangent(key);  }  **4. expo.c**  # include <stdio.h>  # include <math.h>  double exponential(int value){  return exponential(value);  }  double x\_power\_y(int x, int y){  return x\_power\_y(x, y);  }  **5. fact.c**  # include <stdio.h>  int fact(int y){  if (y == 0)  return 1;  return y \* fact(y - 1);  }  **6. lib\_mylib.h**  #include <math.h>  // Arithmetic Methods  int add(int n1, int n2);  int subtract(int n1, int n2);  int multiply(int n1, int n2);  int divide(int n1, int n2);  // Trigonometric Methods  double sine(int value);  double cosine(int value);  double tangent(int value);  // Logarithmic Methods  double log\_base\_10(int value);  double natural\_log(int value);  // Exponential Methods  double exponential(int value);  double x\_power\_y(int x, int y);  // Factorial Method  int fact(int y);  **7.driver.c**  #include "lib\_mylib.h"  #include <stdio.h>  int main() {  int choice;  int n1, n2;  int value;  int x, y;  do {  printf("\nMenu:\n");  printf("1. Add\n");  printf("2. Subtract\n");  printf("3. Multiply\n");  printf("4. Divide\n");  printf("5. Sine\n");  printf("6. Cosine\n");  printf("7. Tangent\n");  printf("8. Log base 10\n");  printf("9. Natural Log\n");  printf("10. Exponential\n");  printf("11. X to the power of Y\n");  printf("12. Factorial\n");  printf("0. Exit\n");  printf("Enter your choice: ");  scanf("%d", &choice);  switch (choice) {  case 1:  printf("Enter two numbers: ");  scanf("%d %d", &n1, &n2);  printf("Result: %d\n", add(n1, n2));  break;  case 2:  printf("Enter two numbers: ");  scanf("%d %d", &n1, &n2);  printf("Result: %d\n", subtract(n1, n2));  break;  case 3:  printf("Enter two numbers: ");  scanf("%d %d", &n1, &n2);  printf("Result: %d\n", multiply(n1, n2));  break;  case 4:  printf("Enter two numbers: ");  scanf("%d %d", &n1, &n2);  printf("Result: %d\n", divide(n1, n2));  break;  case 5:  printf("Enter an angle in degrees: ");  scanf("%d", &value);  printf("Result: %lf\n", sine(value));  break;  case 6:  printf("Enter an angle in degrees: ");  scanf("%d", &value);  printf("Result: %lf\n", cosine(value));  break;  case 7:  printf("Enter an angle in degrees: ");  scanf("%d", &value);  printf("Result: %lf\n", tangent(value));  break;  case 8:  printf("Enter a value: ");  scanf("%d", &value);  printf("Result: %lf\n", log\_base\_10(value));  break;  case 9:  printf("Enter a value: ");  scanf("%d", &value);  printf("Result: %lf\n", natural\_log(value));  break;  case 10:  printf("Enter a value: ");  scanf("%d", &value);  printf("Result: %lf\n", exponential(value));  break;  case 11:  printf("Enter base (x) and exponent (y): ");  scanf("%d %d", &x, &y);  printf("Result: %lf\n", x\_power\_y(x, y));  break;  case 12:  printf("Enter a number: ");  scanf("%d", &y);  printf("Result: %d\n", fact(y));  break;  case 0:  printf("Exiting program. Goodbye!\n");  break;  default:  printf("Invalid choice. Please try again.\n");  }  } while (choice != 0);  return 0;  }  **Static Linking:**      **Dynamic Linking:** |
| **CONCLUSION:** | Hence by completing this experiment I came to know about static linking and dynamic linking. |