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Noel Kalicharan স্যার এর বইয়েই সবগুলো সমস্যার সমাধান। কোশ্চেন গুলো বই থেকে দেখে নিও তাহলে প্রোগ্রামগুলো বুঝতে সুবিধা হবে।

1. WAP to prints the area of the square. p7

Output:

Enter length of side = 12

Area of square is = 144

#include <stdio.h>

int main()

{

int a, s;

printf("Enter length of side = ");

scanf("%d", &s); ***//storage length in s***

a = s \* s;

printf("\nArea of square is = %d\n", a);

return 0;

}

2.1 Print a message. P12

Output:

Welcome to Bangladesh

#include <stdio.h>

int main()

{

printf("Welcome to Bangladesh");

}

2.2 Print a message. P15

Output:

My name is Kibria

I live in Dhaka – Bangladesh

#include <stdio.h>

int main()

{

printf("My name is Kibria\n");

printf("\nI live in Dhaka-Bangladesh\n");

}

3. Escape sequence. P16

#include <stdio.h>

int main()

{

//escape sequence

printf("\"Dhaka is the capital of Bangladesh\"\n");

printf("Golam \\Kibria\n");

}

Output:

"Dhaka is the capital of Bangladesh"

Golam \Kibria

4. WAP to print the sum of two numbers. P19

Output:

14 + 26 = 40

#include <stdio.h>

int main()

{

int a, b, sum;

a = 14;

b = 26;

sum = a + b;

printf("%d + %d = %d\n", a, b, sum);

return 0;

}

5. Sum, sub, multiple, dividend, modulus of two number. P31

#include <stdio.h>

int main()

{

int a = 15;

int b = 24;

printf("%d %d\n", b - a + 7, b - (a + 7));

printf("%d %d\n", b - a - 4, b - (a - 4));

printf("%d %d\n", b % a / 2, b % (a / 2));

printf("%d %d\n", b \* a + 2, b \* (a + 2));

printf("%d %d\n", b / 2 \* a, b / (2 \* a));

return 0;

}

Output:

16 2

5 13

4 3

362 408

180 0

6. Print an integer using a field width. P33

Output:

9876

- 3

501

9876

-3

501

#include <stdio.h>

int main()

{

int a = 9876;

int b = -3;

int c = 501;

printf("%d\n", a);

printf("%d\n", b);

printf("%d\n", c);

printf("\n\n");

printf("%5d\n", a);

printf("%5d\n", b);

printf("%5d\n", c);

}

7. Print a floating-point number. P35

#include <stdio.h>

int main()

{

float a = 419.56;

***/\*যদি .5678 থাকতো এবং নিচে .2f থাকতো তখন .57 প্রিন্ট হতো\*/***

float b = -8.70;

float c = 3.25;

printf("%6.2f\n", a);

printf("%6.2f\n", b);

printf("%6.2f\n", c);

***//printf("6.2f \n6.2f \n6.2f \n", a, b, c);***

return 0;

}

Output:

419.56

-8.70

3.25

8. Print a double number. P36

#include <stdio.h>

int main()

{

***/\*we can store a double value in a double variable***

***and a float value in a float variable***

***if we assign a double to a float some precision may be lost\*/***

double d = 987.654321;

double x = d;

printf("%lf\n", x);

return 0;

}

Output:

987.654321

9. Expression with integer and floating-point values. P37

Output:

3.800000

42.059162

3.800000

#include <stdio.h>

int main()

{

double n = 19;

int a = 5;

double result = n / a;

double c = 4.68;

float d = 8.987;

double result2 = c \* d;

double x = 19;

double y = 5;

double result3 = x / y;

printf("%lf\n", result);

printf("\n%lf\n", result2);

printf("\n%lf\n", result3);

return 0;

}

10.1 Assigning double/float to int. p37

Output:

1.400000

#include <stdio.h>

int main()

{

int a = 7, b = 5;

float x;

x = (float)a / b;

***/\*or, a / (float)b***

***or, (float)a/ (float)b\*/***

printf("%f\n", x);

}

10.2 Assigning double/float to int. p38

Output:

987

#include <stdio.h>

int main()

{

***/\*when we assign a double value to an int***

***the factorial part is dropped\*/***

double d = 987.654321;

int n = d;

printf("%d\n", n);

return 0;

}

11.1 Print a simple string. P38

#include <stdio.h>

int main()

{

***/\*a long string can be broke up into pieces.***

***when the program is compiled, c will join***

***the pieces and making one string\*/***

printf("My name is "

"Golam Kibria. "

"I live in Dhaka\n");

}

Output:

My name is Golam Kibria.I live in Dhaka

11.2 Print a simple string. P39

Output:

Hello, Golam Kibria

#include <stdio.h>

int main()

{

char name[50] = "Golam Kibria";

printf("Hello, %s\n", name);

}

12. Copy a string. P40

Output: Hello, Golam Kibria

#include <stdio.h> ***//needed for printf***

#include <string.h> ***//needed for strcpy***

int main()

{

char name[50];

strcpy(name, "Golam Kibria");

printf("Hello, %s\n", name);

}

13. Joining two string or string concatenation. P40

Output: Alice in Bangladesh

#include <stdio.h>

#include <string.h>

int main()

{

char name[30] = "Alice";

char last[30] = "Bangladesh";

strcat(name, " in ");

strcat(name, last);

printf("%s\n", name);

}

14. Print some number. P42

#include <stdio.h>

int main()

{

int a = 13;

int b = a + 12;

printf("%d %d\n", a, b);

int c = a + b;

a = a + 11;

printf("a = %d b = %d c = %d\n", a, b, c);

}

Output:

13 25

a = 24 b = 25 c = 38

15. Print some number using field width. P43

Output:

75

75 //3 space

75

00075

#include <stdio.h>

int main()

{

int num = 75;

printf("%d\n", num);

printf("%5d\n", num);

printf("%-5d\n", num);

printf("%05d\n", num);

}

16. Read a string and print it. P54

#include <stdio.h>

int main()

{

char name[50];

printf("Hi, what's your name? ");

gets(name);

printf("Delighted to meet you, %s\n", name);

}

Output:

Hi, what's your name? Kibria

Delighted to meet you, Kibria

17. WAP to take three integer and print their average. P55

#include <stdio.h>

int main()

{

int a, b, c;

double avg;

printf("Enter 3 integer = ");

scanf("%d %d %d", &a, &b, &c);

avg = (a + b + c) / 3.0;

//or, avg = (double)(a+b+c)/3;

printf("The average is = %.2lf\n", avg);

}

Output:

Enter 3 integer = 23 7 10

The average is = 13.33

18. WAP to take a whole number and print its square. P56

#include <stdio.h>

int main()

{

int num;

scanf("%d", &num);

printf("\nSquare of %d is %d\n", num, num \* num);

}

Output:

4

Square of 4 is 16

19. WAP to read the data from the customer, calculate the interest and service charge and print the customer’s name, average balance, interest and service charge.

Interest = 6% of average balance.

Service charge = 50% per transaction. P57

#include <stdio.h>

int main()

{

char name[50], aNum[50];

double avg;

int tran;

printf("Name? ");

gets(name);

printf("Accounr number? ");

gets(aNum);

printf("Average banance? ");

scanf("%lf", &avg);

printf("Num of transaction? ");

scanf("%d", &tran);

double interest = avg \* 0.06;

double sCharge = tran / 2.0; ***//or, (double)tran***

printf("Name: %s\n", name);

printf("Average balance: $%.2lf\n", avg);

printf("Interest: $%.2lf\n", interest);

printf("Service charge: $%.2lf\n", sCharge);

}

Output:

Name ? Golam Kibria

Accounr number ? 354545634256

Average banance ? 2500

Num of transaction ? 13

Name : Golam Kibria

Average balance : $2500.00

Interest : $150.00

Service charge : $6.50

20. Tickets are sold in three categories: reserve, stands and grounds. WAP for these values and print the amount of money collected from each category of tickets. Also print the total amount of tickets sold and the total amount of money collected. P60

#include <stdio.h>

int main()

{

//r=reserve || s=stands || g = grounds

double rPrice, sPrice, gPrice;

int rSold, sSold, gSold;

printf("Reserve price and tickets sold? ");

scanf("%lf %d", &rPrice, &rSold);

printf("Stands price and tickets sold? ");

scanf("%lf %d", &sPrice, &sSold);

printf("Grounds price and tickets sold? ");

scanf("%lf %d", &gPrice, &gSold);

double rSeals, sSales, gSales;

rSeals = rPrice \* rSold;

sSales = sPrice \* sSold;

gSales = gPrice \* gSold;

int tticketsold = rSold + sSold + gSold;

double tmoneycollected = rSeals + sSales + gSales;

printf("Reserve sales: $%.2lf\n", rSeals);

printf("Stands sales: $%.2lf\n", sSales);

printf("Grounds sales: $%.2lf\n", gSales);

printf("%d tickets were sold\n", tticketsold);

printf("Total money collected: $%.2lf\n", tmoneycollected);

}

Output:

Reserve priceand tickets sold ? 100 500

Stands price and tickets sold ? 75 4000

Grounds price and tickets sold ? 40 8000

Reserve sales : $50000.00

Stands sales : $300000.00

Grounds sales : $320000.00

12500 tickets were sold

Total money collected : $670000.00

21. Print job charge based on hours worked and cost of parts.

NOTE: $100 per hour and minimum charge for any job is $150. P70

Output:

Hours workd ? 2.5

Cost of part ? 20

Charge of the job = $270.00

Hours workd ? 1

Cost of part ? 25

Charge of the job = $150.00

#include <stdio.h>

int main()

{

double hours, parts, jobCharge;

printf("Hours workd? ");

scanf("%lf", &hours);

printf("Cost of part? ");

scanf("%lf", &parts);

jobCharge = hours \* 100 + parts;

if (jobCharge < 150)

jobCharge = 150;

printf("Charge of the job = $%.2lf\n", jobCharge);

}

This program is same as above (21) but only difference is this program illustrates the use of symbolic constants.

#include <stdio.h>

#define chargePerhour 100

#define conditionValue 150

int main()

{

double hours, parts, jobCharge;

printf("Hours workd? ");

scanf("%lf", &hours);

printf("Cost of part? ");

scanf("%lf", &parts);

jobCharge = hours \* chargePerhour + parts;

if (jobCharge < conditionValue)

jobCharge = conditionValue;

printf("Charge of the job = $%.2lf\n", jobCharge);

}

/\*উপরের টার মতো সেম আউটপুট\*/

22. Find the sum of two length. P73

For example: 3m 25cm and 2m 15cm is 5m 40cm but the sum of 3m 75cm and 5m 50cm is 9m 25cm.

Output:

Enter value for mand cm = 5 75

Enter value for mand cm = 3 45

Sum is 9m 20cm

#include <stdio.h>

int main()

{

int m1, cm1, m2, cm2, mSum, cmSum;

printf("Enter value for m and cm = ");

scanf("%d %d", &m1, &cm1);

printf("Enter value for m and cm = ");

scanf("%d %d", &m2, &cm2);

mSum = m1 + m2;

cmSum = cm1 + cm2;

if (cmSum >= 100)

{

cmSum = cmSum - 100;

mSum = mSum + 1;

}

printf("\nSum is %dm %dcm\n", mSum, cmSum);

}

This program is same as above (22).

Output:

Enter value for mand cm = 3 150

Enter value for mand cm = 2 200

Sum is 8m 50cm

#include <stdio.h>

int main()

{

int m1, cm1, m2, cm2, mSum, cmSum;

printf("Enter value for m and cm = ");

scanf("%d %d", &m1, &cm1);

printf("Enter value for m and cm = ");

scanf("%d %d", &m2, &cm2);

mSum = m1 + m2;

cmSum = cm1 + cm2;

if (cmSum >= 100)

{

mSum = mSum + cmSum / 100;

cmSum = cmSum % 100;

}

printf("\nSum is %dm %dcm\n", mSum, cmSum);

}

23. Request three marks. Print their average and pass/fail. P76

Output:

Enter 3 marks = 60 40 56

Average is = 52.00 Pass

#include <stdio.h>

int main()

{

int mark1, mark2, mark3;

double avg;

printf("Enter 3 marks = ");

scanf("%d %d %d", &mark1, &mark2, &mark3);

avg = (mark1 + mark2 + mark3) / 3.0;

printf("Average is = %.2lf ", avg);

if (avg >= 50)

printf("Pass\n");

else

printf("Fail\n");

}

24. Request a score and prints letter grade. P84

Output:

Enter a score = 70

Grade B

#include <stdio.h>

int main()

{

int score;

printf("Enter a score = ");

scanf("%d", &score);

printf("\nGrade ");

if (score < 50) printf("F\n");

else if (score < 75) printf("B\n");

else printf("A\n");

***/\*else {***

***if (score < 75) printf("B\n");***

***else printf("A\n");***

***}\*/***

}

25. Calculate pay. P77

Suppose we have values for hours worked and rate of pay (the amount paid per hour) and wish to calculate a person’s regular pay, overtime pay and gross pay based on the following.

If hours worked is less than or equal to 40, regular pay is calculated by multiplying hours worked by rate of pay and overtime pay is 0. If greater than 40 then regular pay is calculated by multiplying the hours in excess of 40 by the rate of pay by 1.5. Gross pay is calculated by adding regular pay and overtime pay.

#include <stdio.h>

int main()

{

double hours, rateperhour, regularPay, overtimePay, grossPay;

printf("Hours worked? ");

scanf("%lf", &hours);

printf("Rate of pay? ");

scanf("%lf", &rateperhour);

if (hours <= 40)

{

regularPay = hours \* rateperhour;

overtimePay = 0;

}

else

{

regularPay = 40 \* rateperhour;

overtimePay = (hours - 40) \* rateperhour \* 1.5;

}

grossPay = regularPay + overtimePay;

printf("\nRegular pay: $%.2lf\n", regularPay);

printf("Overtime pay: $%.2lf\n", overtimePay);

printf("Gross pay: $%.2lf\n", grossPay);

}

Output:

Hours worked ? 50

Rate of pay ? 12

Regular pay : $480.00

Overtime pay : $180.00

Gross pay : $660.00

This program is same as 25. We just solve this problem using symbolic constant.

#include <stdio.h>

#define maxregularhour 40

#define overtimefactor 1.5

int main()

{

double hours, rateperhour, regularPay, overtimePay, grossPay;

printf("Hours worked? ");

scanf("%lf", &hours);

printf("Rate of pay? ");

scanf("%lf", &rateperhour);

if (hours <= maxregularhour)

{

regularPay = hours \* rateperhour;

overtimePay = 0;

}

else

{

regularPay = maxregularhour \* rateperhour;

overtimePay = (hours - maxregularhour) \* rateperhour \* overtimefactor;

}

grossPay = regularPay + overtimePay;

printf("\nRegular pay: $%.2lf\n", regularPay);

printf("Overtime pay: $%.2lf\n", overtimePay);

printf("Gross pay: $%.2lf\n", grossPay);

}

Output:

Hours worked ? 50

Rate of pay ? 12

Regular pay : $480.00

Overtime pay : $180.00

Gross pay : $660.00

26. Request three sides and determine types of triangle. P86

Output:

Enter 3 sides of a triangle = 7 4 7

Isosceles

#include <stdio.h>

int main()

{

int a, b, c;

printf("Enter 3 sides of a triangle = ");

scanf("%d %d %d", &a, &b, &c);

if (a <= 0 || b <= 0 || c <= 0)

printf("\nNot a triangle\n");

else if (a + b <= c || b + c <= a || c + a <= b)

printf("\nNot a triangle\n");

else if (a == b && b == c)

printf("\nEqualateral\n");

else if (a == b || b == c || c == a)

printf("\nIsosceles\n");

else if (a \* a + b \* b == c \* c)

printf("\nRight angle\n");

else

printf("\nScalene\n");

}

27. Print the sum of several numbers entered by user. P95

Output:

Enter a number(0 to end) : 24

Enter a number(0 to end) : 13

Enter a number(0 to end) : 55

Enter a number(0 to end) : 32

Enter a number(0 to end) : 19

Enter a number(0 to end) : 0

The sum is = 143

#include <stdio.h>

int main()

{

int num, sum = 0;

printf("Enter a number (0 to end): ");

scanf("%d", &num);

while (num != 0)

{

sum = sum + num;

printf("Enter a number (0 to end): ");

scanf("%d", &num);

}

printf("\nThe sum is = %d\n", sum);

}

28. Print the sum and count of several numbers entered by user. P98

Output:

Enter a number(0 to end) : 24

Enter a number(0 to end) : 13

Enter a number(0 to end) : 55

Enter a number(0 to end) : 32

Enter a number(0 to end) : 19

Enter a number(0 to end) : 0

5 numbers were entered

The sum is = 143

#include <stdio.h>

int main()

{

int num, sum = 0, c = 0;

printf("Enter a number (0 to end): ");

scanf("%d", &num);

while (num != 0)

{

c = c + 1;

sum = sum + num;

printf("Enter a number (0 to end): ");

scanf("%d", &num);

}

printf("\n%d numbers were entered\n", c);

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

}

29. Print the sum and average entered by user. P98

Output:

Enter a number(0 to end) : 24

Enter a number(0 to end) : 13

Enter a number(0 to end) : 55

Enter a number(0 to end) : 32

Enter a number(0 to end) : 19

Enter a number(0 to end) : 0

5 numbers were entered

The sum is = 143

The average is = 28.60

#include <stdio.h>

int main()

{

int num, sum = 0, c = 0;

double avg;

printf("Enter a number (0 to end): ");

scanf("%d", &num);

/\*If user entered 0 then, there is a problem thst's why we use this system.\*/

if (num == 0) printf("No numbers entered\n");

else

{

while (num != 0)

{

c = c + 1;

sum = sum + num;

printf("Enter a number (0 to end): ");

scanf("%d", &num);

}

printf("\n%d numbers were entered\n", c);

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

printf("The average is = %.2lf\n", (double)sum / c);

}

}

30. Find the HCF of two numbers entered by user. P97

Output:

Enter two numbers = 42 24

Their HCF is = 6

#include <stdio.h>

int main()

{

int m, n, rem;

printf("Enter two numbers = ");

scanf("%d %d", &m, &n);

while (n != 0)

{

rem = m % n;

m = n;

n = rem;

}

printf("\nTheir HCF is = %d\n", m);

***/\*m is always greater than n. If n is greater than m then***

***the compiler automatically store the big value into m.\*/***

}

31. Increment and Decrement operator. P100

Output:

Suffix: 7

Prefix : 8

Suffix : 8

Prefix : 7

#include <stdio.h>

int main()

{

int n = 7, m = 3;

printf("Suffix: %d\n", m = n++);

printf("Prefix: %d\n", n = ++m);

printf("\n");

printf("Suffix: %d\n", m = n--);

printf("Prefix: %d\n", n = --m);

***/\*++n increment n befoe using its value,***

***whereas n++ increment n after using its value.\*/***

}

32. Find the largest of a set of numbers entered by user. P103

Output:

Enter a number(0 to end) : 36

Enter a number(0 to end) : 17

Enter a number(0 to end) : 43

Enter a number(0 to end) : 52

Enter a number(0 to end) : 50

Enter a number(0 to end) : 0

The large is = 52\*/

#include <stdio.h>

int main()

{

int num, bigNum;

printf("Enter a number(0 to end): ");

scanf("%d", &num);

if (num == 0)return;

/\*In c, the keyword return can be used in main to

halt he program by returning to the operating system.\*/

bigNum = num;

while (num != 0)

{

if (num > bigNum) bigNum = num;

printf("Enter a number(0 to end): ");

scanf("%d", &num);

}

printf("\nThe large is = %d\n", bigNum);

}

33. Find the smallest of a set of numbers entered by user. P106

Output:

Enter a number(0 to end) : 36

Enter a number(0 to end) : -17

Enter a number(0 to end) : 43

Enter a number(0 to end) : -52

Enter a number(0 to end) : 50

Enter a number(0 to end) : 0

The smallest is = -52

#include <stdio.h>

int main()

{

int num, smallNum;

printf("Enter a number(0 to end): ");

scanf("%d", &num);

if (num == 0)return;

smallNum = num;

while (num != 0)

{

if (num < smallNum) smallNum = num;

printf("Enter a number(0 to end): ");

scanf("%d", &num);

}

printf("\nThe smallest is = %d\n", smallNum);

}

34. Print five times a letter using loop. P123

output:

1. Golam Kibria

2. Golam Kibria

3. Golam Kibria

4. Golam Kibria

5. Golam Kibria

#include <stdio.h>

int main()

{

for (int i = 1; i <= 5; i++)

{

printf("%d. Golam Kibria\n", i);

}

}

35. Print many times of a letter entered by the user. P124

Output:

How many line ? 12

1. Golam Kibria

2. Golam Kibria

3. Golam Kibria

4. Golam Kibria

5. Golam Kibria

6. Golam Kibria

7. Golam Kibria

8. Golam Kibria

9. Golam Kibria

10. Golam Kibria

11. Golam Kibria

12. Golam Kibria

#include <stdio.h>

int main()

{

int n;

printf("How many line you want to print? ");

scanf("%d", &n);

printf("\n");

for (int i = 1; i <= n; i++)

{

printf("%2d. Golam Kibria\n", i);

}

}

36.1 Multiplication table. P126

Output:

2 X 1 = 2

2 X 2 = 4

2 X 3 = 6

2 X 4 = 8

2 X 5 = 10

2 X 6 = 12

2 X 7 = 14

2 X 8 = 16

2 X 9 = 18

2 X 10 = 20

#include <stdio.h>

int main()

{

for (int i = 1; i <= 10; i++)

{

printf("2 X %2d = %2d\n", i, 2 \* i);

}

}

36.2 Multiplication of a table. P127

output:

Which table ? 5

5 X 1 = 5

5 X 2 = 10

5 X 3 = 15

5 X 4 = 20

5 X 5 = 25

5 X 6 = 30

5 X 7 = 35

5 X 8 = 40

5 X 9 = 45

5 X 10 = 50

#include <stdio.h>

int main()

{

int n;

printf("Which table? ");

scanf("%d", &n);

for (int i = 1; i <= 10; i++)

{

printf("%d X %2d = %2d\n", n, i, n \* i);

}

}

37. Multiplication table (From 🡪 To). P128

Output:

Which table ? 6

From ? 10

To ? 16

6 X 10 = 60

6 X 11 = 66

6 X 12 = 72

6 X 13 = 78

6 X 14 = 84

6 X 15 = 90

6 X 16 = 96

#include <stdio.h>

int main()

{

int n;

printf("Which table? ");

scanf("%d", &n);

int f, t;

printf("From? ");

scanf("%d", &f);

printf("To? ");

scanf("%d", &t);

if (f > t) {

printf("Invalid data!\n");

***/\*cuz from value is bigger than to to value\*/***

}

else

{

for (int i = f; i <= t; i++)

{

printf("%2d X %2d = %2d\n", n, i, n \* i);

}

}

}

38. Temperature convention menu. P130

Output:

Celcius Farenheit

0 32

10 50

20 68

30 86

40 104

50 122

60 140

70 158

80 176

90 194

100 212

#include <stdio.h>

int main()

{

double c, f;

printf("Celcius Farenheit\n\n");

for (c = 0; c <= 100; c = c + 10)

{

f = (c \* 1.8) + 32;

printf("%5.0lf%10.0lf\n", c, f);

}

}

39. Expressive power of for. P132

Output:

Enter the end ? 10

1 9

2 8

3 7

4 6

5 5

#include <stdio.h>

int main()

{

int start, end;

printf("Enter the end? ");

scanf("%d", &end);

for (start = 1, end = end - 1; start <= end; start++, end--)

{

printf("%d %d\n", start, end);

}

}

40. Determine HCF of two number using do…while loop. P134

Output:

Enter the value of aand b : 40 - 9

Enter the value of a and b : 30 0

Enter the value of a and b : 200 16

The HCF of 200 and 16 is = 8

#include <stdio.h>

int main()

{

int a, b, rem;

do {

printf("Enter the value of a and b : ");

scanf("%d %d", &a, &b);

} while (a <= 0 || b <= 0);

***/\*both a and b must be positive\*/***

printf("\nThe HCF of %d and %d is = ", a, b);

do {

rem = a % b;

a = b;

b = rem;

} while (b != 0);

printf("%d\n", a);

}

41. Interest at the bank.

A man deposit $1000 in a bank at an interest rate of 10% per year. At the end of each year, the interest earned is added to the amount on deposit and this become the new deposit for the next year. WAP to determine the year in which the amount accumulated first exceeds $2000. For each year, print the deposit at the beginning of the year and the interest year for that year until the target is reached. P135

#include <stdio.h>

int main()

{

int year = 0;

double initialdeposit, interestrate, target, deposit, interest;

printf("Intial deposit? ");

scanf("%lf", &initialdeposit);

printf("Rate of interest? ");

scanf("%lf", &interestrate);

printf("Target deposit? ");

scanf("%lf", &target);

printf("\nYear Deposit Interest\n\n");

deposit = initialdeposit;

do {

year++;

interest = deposit \* interestrate / 100;

deposit = deposit + interest;

printf("%3d %8.2lf %8.2lf\n", year, deposit, interest);

} while (deposit <= target);

printf("\nDeposit exceed $%7.2lf at the end of year %d\n", target, year);

}

Output:

Intial deposit ? 1000

Rate of interest ? 10

Target deposit ? 2000

Year Deposit Interest

1 1100.00 100.00

2 1210.00 110.00

3 1331.00 121.00

4 1464.10 133.10

5 1610.51 146.41

6 1771.56 161.05

7 1948.72 177.16

8 2143.59 194.87

Deposit exceed $2000.00 at the end of year 8

42. Read and print character. P145

Output:

Hello

Value of EOF is -1

#include <stdio.h>

int main()

{

char ch = getchar();

***//int ch = getchar();***

printf("Value of EOF is %d \n", EOF);

***/\*if we call getchar when there***

***is no more data it simplay returns -1\*/***

}

43. Read a character and print its code and the value of EOF. P46

#include <stdio.h>

int main()

{

printf("Type some data and press Enter \n");

char ch = getchar();

***/\*if we use only getch() then its only take h***

***so, we use getchar() cuz it take the full character like hello\*/***

printf("\nThe first character is : %c\n", ch);

printf("It's code is : %d\n", ch);

printf("Value of EOF is : %d\n", EOF);

Output:

Type some dataand press Enter

Hello

The first character is : H

It's code is : 72

Value of EOF is : -1

***/\*we can also use : int ch = getchar();\*/***

}

44. Print a character and its code. P143

Output:

The character is : K

The code is : 75

#include <stdio.h>

int main()

{

char ch = 'K'; ***//must be single quote***

printf("The character is : %c\n", ch);

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

}

45. Character in arithmetic expression. P144

Output:

The character is : k

The code is : 107

#include <stdio.h>

int main()

{

char ch = 'K' + 32; ***//must be single quote***

printf("The character is : %c\n", ch);

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

}

46. Uppercase to lowercase. P144

Output:

Enter any uppercase letter : A

The lower case letter is : a

The code is = 97

#include <stdio.h>

int main()

{

char ch;

printf("Enter any uppercase letter : ");

ch = getchar();

/\*or, ch = getchar()+32 if we use this then

ch+32(next line) is no needed\*/

printf("The lower case letter is : %c\n", ch+32);

printf("The code is = %d\n", ch + 32);

}

47. Lowercase to uppercase. P144

Output:

Enter any lowercase letter : a

The uppercase letter is : A

The code is = 65

#include <stdio.h>

int main()

{

char ch;

printf("Enter any lowercase letter : ");

ch = getchar();

/\*or, ch = getchar()-32 if we use this then

ch-32(next line) is no needed\*/

printf("The uppercase letter is : %c\n", ch-32);

printf("The code is = %d\n", ch - 32);

}

48. Read and print the first three character in the data. P148

#include <stdio.h>

int main()

{

printf("Type some data and press Enter \n");

int i;

for (i = 1; i <= 3; i++){

char ch = getchar();

printf("Character %d is %c\n", i, ch);

}

}

Output:

Type some data and press Enter

Hi, Kibria

Character 1 is H

Character 2 is i

Character 3 is,

49. Read and print the first non-blank character in the data. P149

#include <stdio.h>

int main()

{

printf("Press some data and press Enter\n");

char ch = getchar();

/\*as long as ch is a blank it will take input again and again. But when getchar find a non-blank character then it directly go to the printf statement\*/

while (ch == ' ')

{

ch = getchar();

}

printf("The first non-blank is %c\n", ch);

}

Output:

Press some dataand press Enter

---Kibria // its indicate space(-)

The first non - blank is K\*

50. Print all character before the first blank in the data. P150

Output:

Type some dataand press Enter

Golam kibria

G

o

l

a

m

#include <stdio.h>

int main()

{

printf("Type some data and press Enter\n");

char ch = getchar();

/\*As long as getchar() does not find a non-blank character the while loop is running. But when it's find a blank character then it print all the character before the black. If user enter 'space' as the first character then its print nothing\*/

while (ch != ' ')

{

printf("%c\n", ch);

ch = getchar();

}

}

51. Print the first non-blank character and count number of non-blank. P152

#include <stdio.h>

int main()

{

printf("Type some data and press Enter\n");

char ch = getchar();

int count = 0;

/\*It's count number of space\*/

while (ch == ' ')

{

count++;

ch = getchar();

}

printf("The number of leading brackets %d\n", count);

printf("The forst non-blank is %c\n", ch);

}

Output:

Type some dataand press Enter

----kibria //- means space(e.g.)

The number of leading brackets 4

The forst non - blank is k

52. Count the number of characters of the input line. P153

#include <stdio.h>

int main()

{

printf("Type some data and press Enter\n");

char ch = getchar();

int count = 0;

/\*repeat as long as \n. When a user press enter

the new line character(\n) returned by getchar\*/

while (ch != '\n')

{

ch = getchar();

count++;

}

printf("The number of character : %d\n", count);

}

Output:

Type some data and press Enter

Hi kibria.How are you.

The number of character : 23

53. Count the number of character and blank in the input line. P154

Output:

Type some dataand press Enter

golam kibria ezaz

Number of character is = 17

Number of blanks = 2

#include <stdio.h>

int main()

{

char ch;

int numberofcharacter = 0;

int numberofblanks = 0;

printf("Type some data and press Enter\n");

ch = getchar();

while (ch != '\n')

{

numberofcharacter++;

ch = getchar();

/\*If character is blank then numberofblank is increment\*/

if (ch == ' '){

numberofblanks++;

}

}

printf("Number of character is = %d\n", numberofcharacter);

printf("Number of blanks = %d\n", numberofblanks);

}

54. Read a line of data and find the largest character. P155

Output:

Type some dataand press Enter

Where The Mind Is Without Fear

The largest character is = u

#include <stdio.h>

int main()

{

char ch;

int bigchar = '\0';

/\*The value of null character('\0') is 0(zero)\*/

printf("Type some data and press Enter\n");

ch = getchar();

while (ch != '\n')

{

if (ch > bigchar){

bigchar = ch;

}

ch = getchar();

}

printf("The largest character is = %c\n", bigchar);

}

55. Read character and digit and print only digit. P163

#include <stdio.h>

int main()

{

char ch;

int num = 0;

ch = getchar();

printf("Type some data including number\n");

/\*As long as the character is

not a digit keep reading\*/

while (ch < '0' || ch > '9')

{

ch = getchar();

}

/\*This loop is executed when

character is a digit\*/

while (ch >= '0' && ch <= '9')

{

num = num \* 10 + ch - '0';

ch = getchar();

}

printf("Number is = %d\n", num);

}

/\*integer value of digit = code for digit character - code for character '0'\*/

Output:

Type some data including number

Golam kibria 3435 diu

Number is = 3435

56. WAP to show how skiplines fits into a complete program. P167

Output:

My name is

Golam kibria

#include <stdio.h>

int main()

{

void skiplines(int n);

printf("My name is \n");

skiplines(2);

printf("Golam kibria\n");

}

void skiplines(int n)

{

int i;

for (i = 1; i <= n; i++) {

printf("\n");

}

}

57.1 Finding largest number between two number. Using function. P171

Output:

Enter two whole number : 4 6

The largest number is : 6

#include <stdio.h>

int main()

{

int max(int a, int b);

int n1, n2;

printf("Enter two whole number: ");

scanf("%d %d", &n1, &n2);

printf("The largest number is: %d\n", max(n1, n2));

}

int max(int a, int b)

{

if (a > b)

return a;

else

return b;

}

57.2 Finding largest number between two number. Using function. P171

#include <stdio.h>

int main()

{

int max(int a, int b);

int n1, n2;

printf("Enter two whole number: ");

scanf("%d %d", &n1, &n2);

while (n1 != 0 || n2 != 0) {

printf("The largest number is : %d\n", max(n1, n2));

printf("Enter two whole number: ");

scanf("%d %d", &n1, &n2);

}

}

Output:

Enter two whole number : 4 6

The largest number is : 6

Enter two whole number : 18 88

The largest number is : 88

Enter two whole number : 33 56

The largest number is : 56

Enter two whole number : 0 9

The largest number is : 9

Enter two whole number : 0 0

int max(int a, int b)

{

if (a > b)

return a;

else

return b;

}

58. Finding largest number between two number. Using function. P173

Output:

Enter two whole number : 4 7

The smallest number is : 4

Enter two whole number : 44 55

The smallest number is : 44

Enter two whole number : 0 0

#include <stdio.h>

int main()

{

int min(int a, int b);

int n1, n2;

printf("Enter two whole number: ");

scanf("%d %d", &n1, &n2);

while (n1 != 0 || n2 != 0) {

printf("The smallest number is: %d\n", min(n1, n2));

printf("Enter two whole number: ");

scanf("%d %d", &n1, &n2);

}

}

int min(int a, int b)

{

if (a < b)

return a;

else

return b;

}

59. Largest character between the two character. Using function. P173

Output:

Enter two character : A C

The largest number is : 67

#include <stdio.h>

int main()

{

int max(int a, int b);

char ch1, ch2;

printf("Enter two character: ");

scanf("%c %c", &ch1, &ch2);

printf("The largest number is: %d\n", max(ch1, ch2));

}

int max(int a, int b)

{

if (a > b)

return a;

else

return b;

}

60. Print the day. P173

Output:

Enter a day from 1 to 7 : 3

Monday

#include <stdio.h>

int main()

{

int n;

printf("Enter a day from 1 to 7: ");

scanf("%d", &n);

if (n == 1) printf("Saturday\n");

else if (n == 2) printf("Sunday\n");

else if (n == 3) printf("Monday\n");

else if (n == 4) printf("Tuesday\n");

else if (n == 5) printf("Wednesday\n");

else if (n == 6) printf("Thirsday\n");

else if (n == 7) printf("Friday\n");

else printf("Invalid day\n");

}

61. Print the day using function. P174

Output:

Enter a day from 1 to 7 : 4

Tuesday

#include <stdio.h>

int main()

{

void printday(int n);

int n;

printf("Enter a day from 1 to 7: ");

scanf("%d", &n);

printday(n);

}

void printday(int n)

{

if (n == 1) printf("Saturday\n");

else if (n == 2) printf("Sunday\n");

else if (n == 3) printf("Monday\n");

else if (n == 4) printf("Tuesday\n");

else if (n == 5) printf("Wednesday\n");

else if (n == 6) printf("Thirsday\n");

else if (n == 7) printf("Friday\n");

else printf("Invalid day\n");

}

62. Determine HCF of two number using function. P176

#include <stdio.h>

int main()

{

int hcf(int m, int n);

int a, b;

printf("Enter two positive number = ");

scanf("%d %d", &a, &b);

while (a > 0 || b > 0) {

printf("The HCF is = %d\n", hcf(a, b));

printf("Enter two positive number = ");

scanf("%d %d", &a, &b);

}

}

int hcf(int m, int n)

{

int rem;

Output:

Enter two positive number = 24 42

The HCF is = 6

Enter two positive number = 32 512

The HCF is = 32

Enter two positive number = 100 31

The HCF is = 1

Enter two positive number = 0 0

while (n != 0) {

rem = m % n;

m = n;

n = rem;

}

return m;

}

63. Using HCF to find LCM. P177

#include <stdio.h>

int main()

{

int hcf(int m, int n);

int a, b;

printf("Enter two positive number = ");

scanf("%d %d", &a, &b);

while (a > 0 || b > 0) {

printf("The HCF is = %d\n", hcf(a, b));

printf("The LCM is = %d\n", (a \* b) / hcf(a, b));

printf("Enter two positive number = ");

scanf("%d %d", &a, &b);

}

}

int hcf(int m, int n)

{

int rem;

while (n != 0) {

rem = m % n;

Output:

Enter two positive number = 8 6

The HCF is = 2

The LCM is = 24

Enter two positive number = 42 24

The HCF is = 6

The LCM is = 168

Enter two positive number = 0 0

m = n;

n = rem;

}

return m;

}

63. Determine factorial. P178

Output:

Enter a positive number = 4

4! = 24

Enter a positive number = 0

0! = 1

#include <stdio.h>

int main()

{

int n, fact = 1;

printf("Enter a positive number = ");

scanf("%d", &n);

int i;

for (i = 2; i <= n; i++) {

fact = fact \* i;

}

printf("%d! = %d\n", n, fact);

}

64. Determine factorial using function. P178

Output:

Enter a positive number = 4

The factorial of 4 is 24

Enter a positive number = 5

The factorial of 5 is 120

Enter a positive number = 8

The factorial of 8 is 40320

Enter a positive number = 0

#include <stdio.h>

int main()

{

int factorial(int x);

int n;

printf("Enter a positive number = ");

scanf("%d", &n);

while (n > 0) {

printf("The factorial of %d is %d\n", n, factorial(n));

printf("Enter a positive number = ");

scanf("%d", &n);

}

}

int factorial(int x)

{

int fact = 1;

int i;

for (i = 2; i <= x; i++) {

fact = fact \* i;

}

return fact;

}

65. Factorial from 0 to 7. P181

Output:

z z!

--------

0 1

1 1

2 2

3 6

4 24

5 120

6 720

7 5040

#include <stdio.h>

int main()

{

int factorial(int x);

int n;

printf("z z!\n"); //5 space

printf("--------\n\n");

for (n = 0; n <= 7; n++) {

printf("%1d %5d\n", n, factorial(n));

}

}

int factorial(int x)

{

int fact = 1;

int i;

for (i = 2; i <= x; i++) {

fact = fact \* i;

}

return fact;

}

66. Combinations.

Suppose there are 7 people on a committee. How many subcommittees of 3 people can be formed? The answer is denote by 7C3 or 7!/4!\*3!

#include <stdio.h>

int main()

{

int factorial(int n);

int combination(int n, int r);

int n, r, ncr;

printf("Enter value for n and r: ");

scanf("%d %d", &n, &r);

while (n != 0) {

ncr = combination(n, r);

if (ncr == 1) {

printf("There is 1 combination of %d object "

"taken %d at a time\n", n, r);

}

else {

printf("There are %d combination of %d object "

"taken %d at a time\n", ncr, n, r);

}

printf("Enter value for n and r: ");

scanf("%d %d", &n, &r);

}

}

int factorial(int n)

{

int fact = 1, i;

for (i = 2; i <= n; i++) {

fact = fact \* i;

}

return fact;

}

***/\*we can also use a and b. a for n and b for r\*/***

int combination(int n, int r)

{

int factorial(int n);

return factorial(n) / (factorial(n - r) \* factorial(r));

}

Output:

Enter value for nand r : 7 3

There are 35 combination of 7 object taken 3 at a time

Enter value for nand r : 6 6

There is 1 combination of 6 object taken 6 at a time

Enter value for nand r : 0 0

67. Print job charge based on hours worked and cost of parts. P184

NOTE: $100 per hour and minimum charge for any job is $150. P70

Output:

Hours worked ? 2.5

Cost of parts ? 20

Charge for the job : $270.00

#include <stdio.h>

#define chargeperhour 100

#define minjobcost 150

int main()

{

double total(double hours, double parts);

double hours, parts;

printf("Hours worked? ");

scanf("%lf", &hours);

printf("Cost of parts? ");

scanf("%lf", &parts);

printf("Charge for the job: $%3.2lf\n", total(hours, parts));

}

double total(double hours, double parts)

{

double jobcharge;

jobcharge = hours \* chargeperhour + parts;

if (jobcharge < minjobcost)

return minjobcost;

return jobcharge;

}

68. Calculate pay using function. P185

Suppose we have values for hours worked and rate of pay (the amount paid per hour) and wish to calculate a person’s regular pay, overtime pay and gross pay based on the following.

If hours worked is less than or equal to 40, regular pay is calculated by multiplying hours worked by rate of pay and overtime pay is 0. If greater than 40 then regular pay is calculated by multiplying the hours in excess of 40 by the rate of pay by 1.5. Gross pay is calculated by adding regular pay and overtime pay.

Output:

Hours worked ? 50

Rate of pay ? 12

Total pay : $660.00

#include <stdio.h>

#define maxregularhour 40

#define overtimefactor 1.5

int main()

{

double totalpay(double hours, double rate);

double hours, rate;

printf("Hours worked? ");

scanf("%lf", &hours);

printf("Rate of pay? ");

scanf("%lf", &rate);

printf("Total pay: $%3.2lf\n", totalpay(hours, rate));

}

double totalpay(double hours, double rate)

{

double regularpay, overtimepay;

if (hours <= maxregularhour)

return hours \* rate;

return maxregularhour \* rate +

(hours - maxregularhour) \* rate \* overtimefactor;

}

69. Sum of exact divisors. P186

Output:

Enter a number: 15

9

#include <stdio.h>

int main()

{

int n;

printf("Enter a number: ");

scanf("%d", &n);

int i;

int sum = 1;

for (i = 2; i <= n / 2; i++) {

if (n % i == 0) {

sum = sum + i;

}

}

printf("%d\n", sum);

}

70.1 Sum of exact divisor using function. P187

Output:

Enter a number : 50

Sum of exact divisor is : 43

#include <stdio.h>

int main()

{

int sumofed(int n);

int n;

printf("Enter a number: ");

scanf("%d", &n);

printf("Sum of exact divisor is : %d\n", sumofed(n));

}

int sumofed(int n)

{

int i;

int sum = 1;

for (i = 2; i <= n / 2; i++) {

if (n % i == 0) {

sum = sum + i;

}

}

return sum;

}

70.2 Sum of exact divisor using function. P187

#include <stdio.h>

int main()

{

int sumofed(int n);

int n;

printf("Enter a number: ");

scanf("%d", &n);

while (n != 0) {

int x = sumofed(n);

if (x > n) printf("Abundant\n");

else if (x < n) printf("Deficient\n");

else printf("Perfect\n");

printf("Enter a number: ");

scanf("%d", &n);

}

}

int sumofed(int n)

{

int i;

int sum = 1;

for (i = 2; i <= n / 2; i++) {

if (n % i == 0) {

sum = sum + i;

}

}

return sum;

}

Output:

Enter a number : 15

Deficient

Enter a number : 12

Abundant

Enter a number : 0

71. Perfect number between 1 to 10000. P187

#include <stdio.h>

int main()

{

int i, n = 10000;

int sum = 0;

printf("Perfect number between 1 to 10000\n");

for (i = 1; i <= n; i++)

{

int p = 1;

while (p <= (i / 2)) {

if (i % p == 0) {

sum = sum + p;

}

p++;

}

if (sum == i) {

Output:

Perfect number between 1 to 10000

6

28

496

8128

printf("%d\n", i);

}

sum = 0;

}

}

72. Some character function. P188

Output:

Enter a character : A

The return value is : 1

#include <stdio.h>

int main()

{

int uppercase(char ch);

char ch;

printf("Enter a characte : ");

scanf("%c", &ch);

printf("The return value is : %d\n", uppercase(ch));

}

int uppercase(char ch)

{

if (ch >= 'Z' && ch <= 'Z')

return 1;

return 0;

/\*we can also write this 3 line into 1 line like this return ch>='A && ch<='Z'. This will be return 1 if the statement is true, and return 0 when it is false\*/

}

/\*The lowercase is also same as uppercase just change this statement like this if(ch>='a' && ch<='z')\*/

/\*If we want to find the digit it is also same as uppercase, just change this statement like this if(ch>='0' && ch<='9')\*/

73. Position of a letter in the alphabet. P189

#include <stdio.h>

int main()

{

int position(char ch);

char ch;

printf("Type some letter and non-letter and press Enter\n");

ch = getchar();

while (ch != '\n') {

printf("%c %3d\n", ch, position(ch));

ch = getchar();

}

}

int uppercase(char ch){

return ch >= 'A' && ch <= 'Z';

}

int lowercase(char ch){

return ch >= 'a' && ch <= 'z';

}

int position(char ch){

int uppercase(char ch);

int lowercase(char ch);

if (uppercase(ch)) return ch - 'A' + 1;

if (lowercase(ch)) return ch - 'a' + 1;

return 0;

}

Output:

Type some letter and non - letter and press Enter

Fa$&n

F 6

a 1

$ 0

& 0

n 14

ch = getchar();

while (ch != '\n') {

printf("%c %3d\n", ch, position(ch));

ch = getchar();

}

we can write this four line into two line like this:

while ((ch = getchar()) != '\n') {

printf("%c %3d\n", ch, position(ch));

}

74. Take some digit and non-digit number and print only digit number. P191

#include <stdio.h>

int main()

{

int getInt();

printf("Type some digit and non-digit number and press Enter\n");

printf("Number is = %d\n", getInt());

}

int getInt()

{

char ch;

ch = getchar();

***/\*As long as the character is not a digit keep reading\*/***

while (ch < '0' || ch>'9') {

ch = getchar();

}

int num = 0;

***/\*At this point character find first digit\*/***

while (ch >= '0' && ch <= '9') {

num = num \* 10 + ch - '0';

ch = getchar();

}

return num;

}

Output:

Type some digit and non-digit and press Enter

Kibrai3435kdh

Number is = 3435

we can write this two line like this:

while (ch < '0' || ch>'9') or, while (!digit(ch))

* As long as the character is not a digit keep reading.

while (ch >= '0' && ch <= '9') or, while (digit(ch))

* At this point character find first digit.

getInt reads data character by character and returns the next

integer found. The function does not take any argument but the bracket

must be written after the name.

75. Find the sum of two length given in meters and centimeters. P192

#include <stdio.h>

**//#include <ctype.h>**

int main()

{

int m1, cm1, m2, cm2, msum, cmsum;

int getInt();

printf("Enter first length: ");

m1 = getInt();

cm1 = getInt();

printf("Enter second length: ");

m2 = getInt();

cm2 = getInt();

msum = m1 + m2;

cmsum = cm1 + cm2;

if (cmsum >= 100) {

msum = msum + 1;

cmsum = cmsum - 100;

}

printf("\nSum is %dm %dcm\n", msum, cmsum);

}

int getInt()

{

char ch;

ch = getchar();

***/\*As long as the character is not a digit keep reading\*/***

while (ch < '0' || ch>'9') {

ch = getchar();

}

int num = 0;

***/\*At this point character find first digit\*/***

while (ch >= '0' && ch <= '9') {

num = num \* 10 + ch - '0';

ch = getchar();

}

return num;

}

Output:

Enter first length : 3m 75cm

Enter second length : 5m 50cm

Sum is 9m 25cm

76. Find average and difference from average. P204

#include <stdio.h>

#define maxnumber 100

int main()

{

int n;

printf("Enter up to 100 numbers (end with 0)\n");

scanf("%d", &n);

int x = 0;

double sum = 0;

int num[maxnumber];

while (n != 0) {

sum = sum + n;

num[x++] = n;

scanf("%d", &n);

}

if (x == 0) printf("No numbers entered\n");

else {

printf("\nNumbers entered: %d\n", x);

printf("Sum of numbers: %1.0lf\n", sum);

double average = sum / x;

printf("The average is: %3.2lf\n", average);

printf("Numbers are different from average\n");

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

printf("%4d %7.2lf\n", num[i], num[i] - average);

}

}

}

Output:

Enter up to 100 numbers(end with 0)

2 7 5 3 0

Numbers entered : 4

Sum of numbers : 17

The average is : 4.25

Numbers are different from average

2 - 2.25

7 2.75

5 0.75

3 - 1.25

77. Letter frequency count. P207

#include <stdio.h>

Golam kibria

Letter Frequency

a 2

b 1

c 0

d 0

e 0

f 0

g 1

h 0

i 2

j 0

k 1

l 1

m 1

n 0

o 1

p 0

q 0

r 1

s 0

t 0

u 0

v 0

w 0

x 0

y 0

z 0

int main()

{

int position(char ch);

char ch;

int n;

int lettercount[27];

for (n = 1; n <= 26; n++) {

lettercount[n] = 0;

}

ch = getchar();

while (ch != '\n') {

n = position(ch);

if (n > 0) {

++lettercount[n];

}

ch = getchar();

}

printf("Letter Frequency\n");

for (n = 1; n <= 26; n++) {

printf("%5c %5d\n", 'a' + n - 1, lettercount[n]);

}

}

int position(char ch)

{

if (isupper(ch)) return ch - 'A' + 1;

if (islower(ch)) return ch - 'a' + 1;

return 0;

}

78. Sum of number using array. P212

Output:

How many numbers : 5

Enters numbers :

3 8 1 5 7

Sum is : 24

#include <stdio.h>

int main()

{

int score[10];

int n;

printf("How many numbers: ");

scanf("%d", &n);

printf("Enters numbers: \n");

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

scanf("%d", &score[i]);

}

int sum = 0;

for (int j = 0; j < n; j++) {

sum = sum + score[j];

}

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

}

**/\*The same program using function\*/**

#include <stdio.h>

int main()

{

int calculatesum(int score[], int n);

int score[10];

int n;

***//printf("How many numbers: ");***

scanf("%d", &n);

printf("Enters numbers: \n");

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

scanf("%d", &score[i]);

}

printf("Sum is : %d\n", calculatesum(score, 5));

}

int calculatesum(int score[], int n)

{

Output: Same as above.

int sum = 0;

for (int j = 0; j < n; j++) {

sum = sum + score[j];

}

return sum;

}

79. Find first alphabetical word before first blank space. P215

Output:

12$kibria dhaka35

kibria

#include <stdio.h>

int main()

{

char word[10];

int n = 0;

char ch = getchar();

***//read data untill it find alphabet.***

while (!isalpha(ch)) {

ch = getchar();

}

***//when find alphabet it execute this loop.***

while (isalpha(ch)) {

word[n++] = ch;

ch = getchar();

}

word[n] = '\0';

printf("%s\n", word);

}

80. Counting number of spaces. P216

#include <stdio.h>

int main()

{

char ch[] = "How we live and how we die";

int i = 0;

int space = 0;

while (ch[i] != 0) {

if (ch[i] == ' ') {

space++;

}

i++;

}

printf("Number of space: %d\n", space);

}

Output:

Number of space : 6

If we want to take it from the user we just

write the program like this:

char ch[40];

gets(ch);

Then the whole program is same as above

81. Reverse the character in a string. P218

#include <stdio.h>

#include <string.h>

int main()

{

char ch[30];

printf("Type some data : ");

gets(ch);

int length;

length = strlen(ch)-1;

int m = 0;

while (m < length) {

char c = ch[m];

ch[m] = ch[length];

ch[length] = c;

Output:

Type some data : golam kibria

airbik malog

/\*if we type comma in input it will also printed in output.\*/

we can also write the while loop like this

for(m = 0, length; m<length; m++, length--)\*

m++; length--;

}

printf("%s\n", ch);

}

82. Check a string palindrome or not. P222

Output:

Enter a string

civic

The string is a palindrome.

#include <stdio.h>

#include <string.h>

int main()

{

char a[100], b[100];

printf("Enter a string\n");

gets(a);

strcpy(b, a);

strrev(b);

if (strcmp(a, b) == 0)

printf("The string is a palindrome.\n");

else

printf("The string isn't a palindrome.\n");

return 0;

}

83. Check a string palindrome or not using function. P222

#include <stdio.h>

#include <string.h>

int main()

{

int palindrome(char ch[]);

char ch[30];

printf("Type some data : ");

gets(ch);

***/\*Two double quotes denote the empty string\*/***

while (strcmp(ch, "") != 0) {

if (palindrome(ch))

printf("Palindrome\n");

else

printf("Not palindrome\n");

printf("Type some data : ");

gets(ch);

}

}

int palindrome(char ch[])

{

int m = 0;

int length;

length = strlen(ch) - 1;

while (m < length)

if (ch[m++] != ch[length--])

return 0;

return 1;

}

Output:

Type some data : kibria

Not palindrome

Type some data : civic

Palindrome

Type some data :

**//press enter to end the output.**

84. A better palindrome function. P224

#include <stdio.h>

#include <string.h>

int main()

{

void onlylowerletter(char phase[], char ch[]);

int palindrome(char ch[]);

char ch[30], phase[30];

printf("Type some data : ");

gets(phase);

***/\*Two double quotes denote the empty string\*/***

while (strcmp(phase, "") != 0) {

onlylowerletter(phase, ch);

printf("Converted to: %s\n", ch);

if (palindrome(ch))

printf("Palindrome\n");

else

printf("Not palindrome\n");

printf("Type some data : ");

gets(phase);

}

}

void onlylowerletter(char phase[], char ch[])

{

int j = 0, n = 0;

char q;

while ((q = phase[j++]) != '\0')

if (isalpha(q)) ch[n++] = tolower(q);

ch[n] = '\0';

}

int palindrome(char ch[])

{

int m = 0;

int length;

length = strlen(ch) - 1;

while (m < length)

if (ch[m++] != ch[length--])

return 0;

return 1;

Output:

Type some data : Madam i'm adam

Converted to : madamimadam

Palindrome

Type some data : Golam, kibria

Converted to : golamkibria

Not palindrome

Type some data :

}

85. Print a day using string. P227

Output:

Enter a day number = 5

wednesday

#include <stdio.h>

int main()

{

int n;

printf("Enter a day number = ");

scanf("%d", &n);

char day[10][10] = { "", "saturday", "sunday", "monday", "tuesday",

"wednesday", "thrisday", "friday" };

if (n < 1 || n > 7)

printf("Invalid Day\n");

else

printf("%s\n", day[n]);

}

86. Find maximum number and its position using array. P233

Output:

How many numbers : 5

12 13 43 55 17

Maximum number is : 55

#include <stdio.h>

int main()

{

int num[100];

int n, i;

printf("How many numbers : ");

scanf("%d", &n);

for (i = 0; i < n; i++) {

scanf("%d", &num[i]);

}

int max = num[0];

int position;

for (i = 1; i < n; i++) {

if (max < num[i]) {

max = num[i];

position = i;

}

}

printf("Maximum number is : %d\n", max);

}

87. Find maximum number by array using function. P233

#include <stdio.h>

int main()

{

int maxnumber(int num[], int n);

int num[100];

int n, i;

printf("How many numbers : ");

scanf("%d", &n);

for (i = 0; i < n; i++){

scanf("%d", &num[i]);

}

printf("Maximum number is : %d\n", maxnumber(num, n));

}

int maxnumber(int num[], int n)

{

int i;

int max = num[0];

for (i = 1; i < n; i++) {

if (max < num[i]) {

max = num[i];

}

}

return max;

}

Output:

How many numbers : 5

12 13 43 55 17

Maximum number is : 55

88. Find small number by array using function. P233

#include <stdio.h>

int main()

{

int minnumber(int num[], int n);

int num[100];

int n, i;

printf("How many numbers : ");

scanf("%d", &n);

for (i = 0; i < n; i++) {

scanf("%d", &num[i]);

}

printf("Small number is : %d\n", minnumber(num, n));

}

int minnumber(int num[], int n)

{

int i;

int min = num[0];

for (i = 1; i < n; i++) {

if (min > num[i]) {

min = num[i];

}

}

return min;

}

Output:

How many numbers : 5

12 13 22 11 45

Small number is : 11

89. Print a desire number from an array index. P245

Output:

61

#include <stdio.h>

int main()

{

int num[7] = { 35, 17, 48, 25, 61, 12, 42 };

printf("%d\n", num[4]);

}

90. Print a desire number from an array index using function. P245

#include <stdio.h>

int main()

{

int num[10];

int n;

printf("How many numbers : ");

scanf("%d", &n);

int i;

printf("Enter %d numbers : ", n);

for (i = 0; i < n; i++)

{

scanf("%d", &num[i]);

}

int x;

printf("Enter the index number you like to print : ");

scanf("%d", &x);

if (x > n) {

printf("Please inter correct index. This is too big\n");

}

else {

printf("The %dth number is : %d\n", x, num[x]);

}

}

Output:

How many numbers : 5

Enter 5 numbers : 12 23 33 45 67

Enter the index number you like to print : 2

The 2th number is : 33

91. Ascending and Descending order. P249

#include <stdio.h>

int main()

{

int i, j, temp, n, number[30];

printf("Enter the value of n \n");

scanf("%d", &n);

printf("Enter %d numbers\n", n);

for (i = 0; i < n; ++i) {

scanf("%d", &number[i]);

}

for (i = 0; i < n; i++)

{

for (j = i + 1; j < n; j++)

{

if (number[i] > number[j])

{

temp = number[i];

number[i] = number[j];

number[j] = temp;

}

}

}

printf("Ascending order : \n");

for (i = 0; i < n; i++)

printf("%d ", number[i]);

printf("\nDescending order : \n");

for (i = n-1; i >= 0; i--)

printf("%d ", number[i]);

}

Output:

Enter the value of n

7

Enter 7 numbers

57 48 49 65 15 33 52

Ascending order :

15 33 48 49 52 57 65

Descending order :

65 57 52 49 48 33 15

92. Print some string in alphabetical order. P259

#include <stdio.h>

#include <string.h>

int main()

{

char str[25][25];

int n;

printf("How many string : ");

scanf("%d", &n);

printf("Enter string one by one : \n");

for (int i = 0; i <= n; i++)

{

gets(str[i]);

}

char temp[25];

for (int i = 0; i <= n; i++)

{

for (int j = i + 1; j <= n; j++)

{

if (strcmp(str[i], str[j]) > 0)

{

strcpy(temp, str[i]);

strcpy(str[i], str[j]);

strcpy(str[j], temp);

}

}

}

printf("\nThe sorted string is : ");

for (int i = 0; i <= n; i++)

{

***/\*printf("%s\n", str[i]);***\*/

puts(str[i]);

}

}

Output:

How many string : 5

Enter string one by one :

kibria

saim

tausif

abid

naeem

The sorted string is :

abid

kibria

naeem

saim

tausif

93. Reverse a string.

Output:

Enter the string : kibria

Reverse string is : airbik

#include<stdio.h>

#include<string.h>

int main()

{

char str[100], temp;

int i, j;

printf("Enter the string :");

gets(str);

i = 0;

j = strlen(str);

while (i < j)

{

temp = str[i];

str[i] = str[j-1];

str[j-1] = temp;

i++; j--;

}

printf("\nReverse string is :%s", str);

}

94. Reverse a string by alphabetical order.

Enter the string : kibria

abiikr

#include <stdio.h>

#include <string.h>

int main()

{

char string[100];

printf("Enter the string : ");

***//scanf(“ % s”, string);***

gets(string);

char temp;

int i, j;

int n = strlen(string);

for (i = 0; i < n - 1; i++) {

for (j = i + 1; j < n; j++) {

if (string[i] > string[j]) {

temp = string[i];

string[i] = string[j];

string[j] = temp;

}

}

}

***/\*printf(“The sorted string is : % s”, string);\*/***

puts(string);

}

95. Sorted some number. P257

#include <stdio.h>

int main()

{

void sort(int num[], int n);

int num[10];

int n;

printf("Type 10 numbers which is end by 0\n");

scanf("%d", &n);

int i = 0;

while (n != 0)

{

num[i++] = n;

scanf("%d", &n);

}

sort(num, i);

printf("\nThe sorted number are\n");

for (int h = 0; h < i; h++)

{

printf("%d ", num[h]);

}

printf("\n");

}

void sort(int num[], int n)

{

for (int h = 1; h < n; h++)

{

int key = num[h];

int a = h - 1;

while (a >= 0 && num[a] > key)

{

num[a + 1] = num[a];

a--;

}

num[a + 1] = key;

}

}

Output:

Type 10 numbers which is end by 0

57 48 79 65 15 33 52 0

The sorted number are

15 33 48 52 57 65 79

96. Sort parallel array

#include <stdio.h>

int main()

{

void parallelsort(int initial, int final, int max, char name[][15], int id[]);

char name[5][15] = { "Kibria", "Saim", "Tausif", "Abid", "Naeem" };

int id[5] = { 3456, 6543, 7865, 1278, 9834 };

parallelsort(0, 4, 15, name, id);

printf("\nThe sorted name and id's are \n");

for (int h = 0; h < 5; h++)

{

printf("%s\t\t%d\n", name[h], id[h]);

}

}

void parallelsort(int initial, int final, int max, char name[][15], int id[])

{

char key[15];

for (int h = initial; h <= final; h++)

{

strcpy(key, name[h]);

int m = id[h];

int k = h - 1;

while (k >= initial && strcmp(key, name[k]) < 0)

{

strcpy(name[k + 1], name[k]);

id[k + 1] = id[k];

--k;

}

strcpy(name[k + 1], key);

id[k + 1] = m;

}

}

Output:

The sorted nameand id's are

Abid 1278

Kibria 3456

Naeem 9834

Saim 6543

Tausif 7865

when we take it from the user just change this

for (int i = 0; i < 5; i++) {

scanf("%s", &name[i]);

}

int id[5];

for (int i = 0; i < 5; i++) {

scanf("%d", &id[i]);

}

97. Binary search.

#include <stdio.h>

int main()

{

int first, last, middle, n, search, array[100];

printf("How many numbers? ");

scanf("%d", &n);

printf("Enter %d integers:\n", n);

for (int i = 0; i < n; i++)

scanf("%d", &array[i]);

printf("Enter the value to find : ");

scanf("%d", &search);

first = 0;

last = n - 1;

middle = (first + last) / 2;

while (first <= last) {

if (array[middle] == search) {

printf("%d is present at index %d.\n", search, middle);

break;

}

else if (array[middle] < search)

first = middle + 1;

else

last = middle - 1;

middle = (first + last) / 2;

}

if (first > last)

printf("Not found! %d is not present in the list.\n", search);

}

Output:

How many numbers ? 5

Enter 5 integers :

12 23 34 45 56

Enter the value to find : 56

56 is present at index 4.

98. Binary search using function.

#include <stdio.h>

int main()

{

int binarysearch(int array[], int search, int first, int last);

int first, last, middle, n, search, array[100];

printf("How many numbers? ");

scanf("%d", &n);

printf("Enter %d integers:\n", n);

for (int i = 0; i < n; i++)

scanf("%d", &array[i]);

printf("Enter the value to find : ");

scanf("%d", &search);

first = 0;

last = n - 1;

middle = (first + last) / 2;

if (first > last)

printf("Not found! %d is not present in the list.\n", search);

int ans = binarysearch(array, search, 0, n - 1);

if (ans == -1) printf("%d not found\n", search);

else printf("%d found is positon %d\n", search, ans);

}

int binarysearch(int array[], int search, int first, int last)

{

int middle = (first + last) / 2;

while (first <= last) {

if (array[middle] == search) return middle;

else if (array[middle] < search) first = middle + 1;

else last = middle - 1;

middle = (first + last) / 2;

}

}

Output:

How many numbers ? 5

Enter 5 integers :

12 23 34 67 78

Enter the value to find : 34

34 found is positon 2

99. Frequency of a character. P266

#include <stdio.h>

int main()

{

char str[1000], ch;

int count = 0;

printf("Enter a string: ");

***/\*fgets(str, sizeof(str), stdin);\*/***

gets(str);

printf("Enter a character to find its frequency: ");

scanf("%c", &ch);

for (int i = 0; str[i] != '\0'; ++i) {

if (ch == str[i])

++count;

}

printf("Frequency of %c = %d", ch, count);

return 0;

}

Output:

Enter a string : kitao golam kibria ki obsta tomar

Enter a character to find its frequency : i

Frequency of i = 4

100. Merge Sorted List. P273

#include <stdio.h>

int main()

{

int A[] = { 21, 28, 35, 40, 61, 75 };

int B[] = { 16, 25, 47, 54 };

int C[20];

int i = 0; int j = 0; int k = -1;

int m = 6; int n = 4;

while (i < m || j < n) {

if (i == m)

C[++k] = B[j++];

else if (j == n)

C[++k] = A[i++];

else if (A[i] < B[j])

C[++k] = A[i++];

else

C[++k] = B[j++];

}

int x = m + n;

for (int h = 0; h < x; h++)

printf("%d ", C[h]);

}

Output:

16 21 25 28 35 40 47 54 61 75

আরো অনেক ইজি ভাবে এই সমস্যাটার সমাধান করে দেয়া আছে ।

সমস্যা ৪৭ – অ্যারের জোট এই সমাধানটা দেখো। (৫২ টি প্রোগ্রামিং সমস্যা)

101. Merge Sorted List(From the user)

#include <stdio.h>

int main()

{

int A[10];

int B[8];

int C[20];

int p, q;

printf("How many value for A? ");

scanf("%d", &p);

printf("Enter %d value for A : \n", p);

for (int z = 0; z < p; z++) {

scanf("%d", &A[z]);

}

printf("How many value for B? ");

scanf("%d", &q);

printf("Enter %d value for B : \n", q);

for (int y = 0; y < q; y++) {

scanf("%d", &B[y]);

}

int i = 0; int j = 0; int k = -1;

int m = p; int n = q;

while (i < m || j < n) {

if (i == m)

C[++k] = B[j++];

else if (j == n)

C[++k] = A[i++];

else if (A[i] < B[j])

C[++k] = A[i++];

else

C[++k] = B[j++];

}

int x = m + n;

for (int h = 0; h < x; h++)

printf("%d ", C[h]);

}

Output:

How many value for A ? 6

Enter 6 value for A :

21 28 35 40 61 75

How many value for B ? 4

Enter 4 value for B :

15 25 47 54

15 21 25 28 35 40 47 54 61 75

102. Merge Sorted List(Using Function)

#include <stdio.h>

int main()

{

int merge(int A[], int m, int B[], int n, int C[]);

int A[] = { 21, 28, 35, 40, 61, 75 };

int B[] = { 16, 25, 47, 54 };

int C[20];

int n = merge(A, 6, B, 4, C);

for (int h = 0; h < n; h++)

printf("%d ", C[h]);

}

int merge(int A[], int m, int B[], int n, int C[])

{

int i = 0; int j = 0; int k = -1;

while (i < m || j < n) {

if (i == m)

C[++k] = B[j++];

else if (j == n)

C[++k] = A[i++];

else if (A[i] < B[j])

C[++k] = A[i++];

else

C[++k] = B[j++];

}

return m + n;

}

Output:

16 21 25 28 35 40 47 54 61 75

103. Printing date using structure. P282

#include <stdio.h>

struct date {

int day;

int month;

int year;

};

int main()

{

struct date date\_of\_birth;

date\_of\_birth.day = 15;

date\_of\_birth.month = 11;

date\_of\_birth.year = 2000;

printf("%d/%d/%d\n", date\_of\_birth.day, date\_of\_birth.month, date\_of\_birth.year);

}

Output:

15/11/2000

104. Printing date using structure from the user. P282

#include <stdio.h>

struct date {

int day;

int month;

int year;

};

int main()

{

void printday(struct date d);

struct date date\_of\_birth;

date\_of\_birth.day;

date\_of\_birth.month;

date\_of\_birth.year;

scanf("%d %d %d", &date\_of\_birth.day, &date\_of\_birth.month, &date\_of\_birth.year);

printday(date\_of\_birth);

}

void printday(struct date d)

{

printf("%d/%d/%d\n", d.day, d.month, d.year);

}

Output:

15 11 2000

15/11/2000

105. printing date using structure by typedef

#include <stdio.h>

typedef struct {

int day;

int month;

int year;

}Date;

int main()

{

Date date\_of\_birth;

date\_of\_birth.day = 15;

date\_of\_birth.month = 11;

date\_of\_birth.year = 2000;

printf("%d/%d/%d\n", date\_of\_birth.day, date\_of\_birth.month, date\_of\_birth.year);

}

Output:

15 / 11 / 2000

106. Printing month, date and year by structure using character array.

#include <stdio.h>

typedef struct {

int day;

char month[4]; ***/\*Goes 0 to 3. 0,1,2 index is for Nov and 3 index for \0\*/***

int year;

}Date;

int main()

{

Date dob; ***/\*Here dob means date of birth\*/***

dob.day = 15;

strcpy(dob.month, "Nov");

dob.year = 2000;

printf("%s %d, %d\n", dob.month, dob.day, dob.year);

}

Output:

Nov 15, 2000

107. Array of structure. P285

#include <stdio.h>

struct person {

char name[30];

int age;

float salary;

char gender[2];

};

int main()

{

struct person man[2];

int i;

for (i = 0; i < 2; i++)

{

printf("Enter information for person %d : \n", i + 1);

printf("Name? ");

scanf("%s", &man[i].name);

printf("Age? ");

scanf("%d", &man[i].age);

printf("Salary? ");

scanf("%f", &man[i].salary);

printf("Gender? ");

scanf("%s", &man[i].gender);

}

for (i = 0; i < 2; i++)

{

printf("\nInformaton for person %d : \n", i + 1);

printf("Name : %s\n", man[i].name);

printf("Age : %d\n", man[i].age);

printf("Salary : %.2f\n", man[i].salary);

#include <stdio.h>

struct person {

char gender;

};

int main()

{

struct person man;

printf("Gender? ");

scanf("%c", &man.gender);

printf("%c", man.gender);

}

Output:

Gender ? M

M

printf("Gender : %s\n", man[i].gender);

}

}

Output:

Enter information for person 1 :

Name? kibria

Age? 20

Salary? 123.4

Gender? M

Enter information for person 2 :

Name? nina

Age? 20

Salary? 345.67

Gender? F

Informaton for person 1 :

Name : kibria

Age : 20

Salary : 123.40

Gender : M

Informaton for person 2 :

Name : nina

Age : 20

Salary : 345.67

Gender : F

#include <stdio.h>

typedef struct {

char gender;

}person;

int main()

{

person man;

printf("Gender? ");

scanf("%c", &man.gender);

printf("%c", man.gender);

}

Output:

Gender ? M

M

108. Search an array of structure. P286

#include <stdio.h>

struct employee {

int num;

char name[30];

int salary;

};

int main()

{

struct employee a[50];

int i; int n; int m;

printf("How many employee? ");

scanf("%d", &n);

printf("Enter employee information.\n"

"Number Name Salary\n");

for (i = 0; i < n; i++){

scanf("%d %s %d", &a[i].num, &a[i].name, &a[i].salary);

}

printf("Which employee you want to search? ");

scanf("%d", &m);

for (i = 0; i < n; i++){

if (m == a[i].num)

break;

}

if (i < n) printf("Enployee found at index %d\n", i);

else printf("Not found\n");

}

Output:

How many employee ? 4

Enter employee information.

Number Name Salary

10 saim 2500

20 gkez 2400

30 tausf 2600

40 motta 3000

Which employee you want to search ? 30

Enployee found at index 2

109. Sort an array of structure. P287

#include<stdio.h>

struct cricket {

char pname[20];

char tname[20];

float avg;

};

int main()

{

struct cricket player[10], temp;

int i, j, n;

printf("Enter the value of n? ");

scanf("%d", &n);

printf("Enter %d value.\n", n);

for (i = 0; i < n; i++) {

printf("\nEnter Player Name : ");

scanf("%s", player[i].pname);

printf("Enter Team Name : ");

scanf("%s", player[i].tname);

printf("Enter Average : ");

scanf("%f", &player[i].avg);

}

for (i = 1; i < n; i++)

for (j = 0; j < n - i; j++) {

if (strcmp(player[j].tname, player[j + 1].tname) > 0) {

temp = player[j];

player[j] = player[j + 1];

player[j + 1] = temp;

}

}

for (i = 0; i < n; i++) {

printf("\n%s\t%s\t%.2f", player[i].pname, player[i].tname, player[i].avg);

}

}

Output:

Enter the value of n ? 3

Enter 3 value.

Enter Player Name : saim

Enter Team Name : bd

Enter Average : 45

Enter Player Name : tausif

Enter Team Name : sa

Enter Average : 56

Enter Player Name : kibria

Enter Team Name : pk

Enter Average : 50

saim bd 45.00

kibria pk 50.00

tausif sa 56.00

110. Read, Search and Sort a Structure.

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

typedef struct {

char name[31];

int age;

char gender;

}student;

int main()

{

void getString(FILE \* in, char str[]);

int getData(FILE \* in, student list[]);

int search(char key[], student list[], int n);

void sort(student list[], int n);

student pupil[100];

char name[31];

FILE\* in = fopen("inputfile.txt", "r");

if (in == NULL) {

printf("Error opening inputfile.\n");

exit(1);

}

int numofstudents = getData(in, pupil);

if (numofstudents == 0) {

printf("No data supplied for students.\n");

}

printf("\n");

for (int h = 0; h < numofstudents; h++)

printf("Name: %-15s Age: %2d\tGender: %1c\t\n", pupil[h].name, pupil[h].age, pupil[h].gender);

printf("\n");

getString(in, name);

while (strcmp(name, "END") != 0) {

int ans = search(name, pupil, numofstudents);

if (ans == -1) printf("%s not found\n", name);

else printf("%s found at location %d\n", name, ans);

getString(in, name);

}

sort(pupil, numofstudents);

printf("\n");

for (int h = 0; h < numofstudents; h++)

printf("Name: %-15s Age: %2d\tGender: %1c\t\n", pupil[h].name, pupil[h].age, pupil[h].gender);

} ***/\*End main\*/***

int getData(FILE\* in, student list[])

{

char temp[31];

void getString(FILE \* in, char str[]);

char readChar(FILE \* in);

int n = 0;

getString(in, temp);

while (n < 100 && strcmp(temp, "END") != 0) {

strcpy(list[n].name, temp);

fscanf(in, "%d", &list[n].age);

list[n].gender = readChar(in);

n++;

getString(in, temp);

}

return n;

} ***/\*End getData\*/***

int search(char key[], student list[], int n)

{

for (int h = 0; h < n; h++)

if (strcmp(key, list[h].name) == 0)return h;

return -1;

***/\*Search for key in list[0] to list[n-1].***

***If found return the location; if not found return -1.\*/***

} ***/\*End search\*/***

void sort(student list[], int n)

{

student temp;

int k;

for (int h = 1; h < n; h++) {

temp = list[h];

k = h - 1;

while (k >= 0 && strcmp(temp.name, list[k].name) < 0) {

list[k + 1] = list[k];

k = k - 1;

}

list[k + 1] = temp;

}

} ***/\*End sort\*/***

void getString(FILE\* in, char str[])

{

***/\*The string is read from the file in.***

***The first non-whitespace character is the delimiter.***

***Store in str, the next string within delimiter.\*/***

char ch, delimiter;

int n = 0;

str[0] = '\0';

***/\*Read over whitespace\*/***

while (isspace(ch = getc(in))); ***/\*Empty while body\*/***

if (ch == EOF) return;

delimiter = ch;

while (((ch = getc(in)) != delimiter) && (ch != EOF))

str[n++] = ch;

str[n] = '\0';

} ***/\*End getString\*/***

char readChar(FILE\* in)

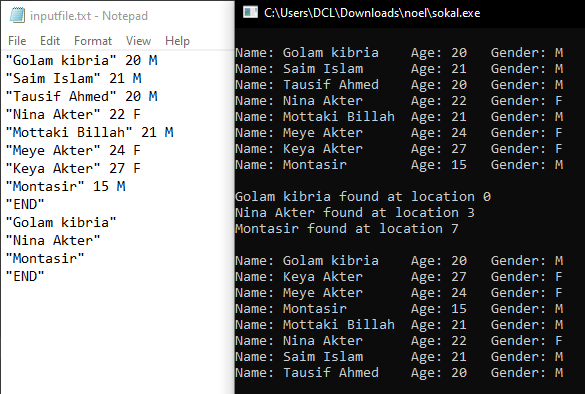
{

char ch;

while (isspace(ch = getc(in))); ***/\*Empty while body\*/***

return ch;

} ***/\*End readChar\*/***



111. Nested Structure. P292

#include <stdio.h>

struct address

{

char city[20];

int pin;

char phone[14];

};

struct employee

{

char name[20];

struct address add;

};

int main()

{

struct employee emp;

printf("Enter employee information?\n");

scanf("%s %s %d %s", emp.name, emp.add.city, &emp.add.pin,emp.add.phone);

printf("Printing the employee information....\n");

printf("name: %s\nCity: %s\nPincode: %d\nPhone: %s", emp.name, emp.add.city, emp.add.pin, emp.add.phone);

}

Output:

Enter employee information ?

kibria

dhaka

1212

01790037447

Printing the employee information....

name: kibria

City : dhaka

Pincode : 1212

Phone : 01790037447

112. Structure to represent a Fraction.

#include <stdio.h>

typedef struct {

int num;

int den; ***/\*den means denominator\*/***

}Fraction;

int main()

{

Fraction f;

f.num;

f.den;

scanf("%d %d", &f.num, &f.den);

printf("%d/%d", f.num, f.den);

}

Output:

5 9

5 / 9

#include <stdio.h>

typedef struct {

int num;

int den; ***/\*den means denominator\*/***

}Fraction;

int main()

{

Fraction f;

f.num = 5;

f.den = 9;

printf("%d/%d", f.num, f.den);

}

Output: 5 / 9

113. Manipulate Fraction by structure. P294

#include <stdio.h>

typedef struct {

int num1;

int den1;

int num2;

int den2;

}Fraction;

int main()

{

Fraction a, b;

a.num1 = 3; a.den1 = 7;

b.num2 = 5; b.den2 = 8;

int x = ((a.num1 \* b.den2) + (b.num2 \* a.den1));

int y = (a.den1 \* b.den2);

printf("%d/%d+%d/%d = %d/%d", a.num1, a.den1, b.num2, b.den2, x, y);

}

Output:

Output: 3 / 7 + 5 / 8 = 59 / 56

114. Pass Structures to Function. P304

#include <stdio.h>

struct student {

char firstname[64];

char lastname[64];

char id[64];

int score;

};

int main(void)

{

void displayDetail(struct student std);

struct student stdArr[3];

int i, n;

printf("How many students? "); scanf("%d", &n);

for (i = 0; i < n; i++) {

printf("Enter detail of %d student.\n", (i + 1));

printf("Enter First Name: ");

scanf("%s", stdArr[i].firstname);

printf("Enter Last Name: ");

scanf("%s", stdArr[i].lastname);

printf("Enter ID: ");

scanf("%s", stdArr[i].id);

printf("Enter Score: ");

scanf("%d", &stdArr[i].score);

}

for (i = 0; i < n; i++) {

printf("\nStudent %d Detail:\n", (i + 1));

displayDetail(stdArr[i]);

}

}

void displayDetail(struct student std)

{

printf("Firstname: %s\n", std.firstname);

printf("Lastname: %s\n", std.lastname);

printf("ID: %s\n", std.id);

printf("Score: %d\n", std.score);

}

Output:

How many students ? 1

Enter detail of 1 student.

Enter First Name : Golam

Enter Last Name : kibria

Enter ID : 2281

Enter Score : 10

Student 1 Detail:

Firstname: Golam

Lastname : kibria

ID : 2281

Score : 10