Sheet#6

1. #include<iostream>

using namespace std;

int main(){

int x = 25;

int \*ptr = &x;

cout<<\*ptr;

}

1. #include<iostream>

using namespace std;

int main(){

string name = "Ahmed";

string \*ptr = &name;

cout<<\*ptr;

}

1. #include<iostream>

using namespace std;

float fn(float miles , float fuel , float \*fpm){

\*fpm = fuel/miles;

}

int main(){

float miles , fuel , fpm ;

cout<<"Enter the number of driven miles : ";

cin>>miles;

cout<<"Enter the fuel consumption : ";

cin>>fuel;

fn(miles , fuel , &fpm);

cout<<"Fuel consumption per mile = "<<fpm;

}

1. #include<iostream>

using namespace std;

int main(){

int arr[5];

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

cout<<"Enter the integer number #"<<i+1<<" : ";

cin>>arr[i];

}

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

cout<<"\nThe integer number #"<<i+1<<" = "<<\*(arr+i)<<"\n";

}

}

1. #include<iostream>

using namespace std;

int main(){

int arr[5] , sum=0 ;

int \*ptr = &sum ;

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

cout<<"Enter the integer number #"<<i+1<<" : ";

cin>>arr[i];

}

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

cout<<"\nThe integer number #"<<i+1<<" = "<<\*(arr+i)<<"\n";

}

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

\*ptr+=arr[i];

}

cout<<"\nSum = "<<\*ptr<<"\n";

}

1. #include<iostream>

using namespace std;

int fn(int \*ptr , int num){

int greatest = 0;

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

if(\*(ptr+i)>=greatest){greatest=\*(ptr+i);}

}

return greatest;

}

int main(){

int arr[8];

cout<<"Enter 8 integers to know the greatest one\n\n";

for(int i=0 ; i<8 ; i++){

cout<<"Enter the integer number #"<<i+1<<" : ";

cin>>arr[i];

}

cout<<"\n"<<fn(arr , 8)<<" is the greatest number.\n";

}

1. #include<iostream>

using namespace std;

int counter=0 ;

int fn(char arr[]){

if(arr[counter]!='\0'){counter++;fn(arr);}

else{return counter-1;}

}

int main(){

char arr[1000];

cout<<"Enter a text to know it's length: ";

fgets(arr , sizeof arr , stdin);

cout<<"\nThis text consisted of "<<fn(arr)<<" characters\n";

}

1. #include<iostream>

#include<cstring>

using namespace std;

int fn(char str[],int i,int space){

if(strlen(str)==i){return space;}

else{

if(\*(str+i)== ' '){space++;}

fn(str,i+1,space);

}

}

int main(){

char str[100];

cout<<"Enter a text to know how many spaces does it contain: ";

gets(str);

cout<<"\nThis text contains "<<(int)fn(str,0,0)<<" spaces.\n";

}

1. #include<iostream>

#include<cstring>

using namespace std;

int check(char \*str,int a,int i,int count){

if(i==a){return count;}

else{

if(str[i]>=48 && str[i]<=57){count++;}

check(str,a,i+1,count);

}

}

int main(){

char str[100];

cout<<"Enter a text to check if it entirely contains digits or not: ";

gets(str);

int a=strlen(str);

if(check(str,a,0,0)){cout<<"\nThe string is entirely consisting of digits.\n";}

else{cout<<"\nThe string isn't entirely consisting of digits.\n";} }

1. #include<iostream>

using namespace std;

int main(){

struct user{

char name[1000];

int age;

}user;

union USA{

char c;

char state[100];

char country[100];

}USA;

cout<<"Enter your name: ";

gets(user.name);

cout<<"Enter your age: ";

cin>>user.age;

cout<<"\nAre you a USA citizen?";

cout<<"\n\nPress 'Y' for YES or 'N' for NO: ";

cin>>USA.c;

if(USA.c == 'y' || USA.c == 'Y'){

cout<<"\nThen, Enter the name of the state where you're coming from: ";

cin>>USA.state;

}

else if(USA.c == 'n' || USA.c == 'N'){

cout<<"\nThen, Enter the name of the country where you're coming from: ";

cin>>USA.country;

}

}

1. #include<iostream>

using namespace std;

typedef struct{

int month,day,year;

}date;

typedef struct{

string first\_name,last\_name,gender;

float height,weight;

date birth;

}HealthProfile;

int fun(HealthProfile person,float \*bmi){

\*bmi = person.weight / (person.height \* person.height);

return (2023 - person.birth.year);

}

int main(){

float bmi;

HealthProfile person;

cout<<"Enter Your First Name: ";

cin>>person.first\_name;

cout<<"Enter Your Last Name: ";

cin>>person.last\_name;

cout<<"Enter Your Gender: ";

cin>>person.gender;

cout<<"Enter Your Birth Date (dd mm yy): ";

cin>>person.birth.day>>person.birth.month>>person.birth.year;

cout<<"Enter Your Height: ";

cin>>person.height;

cout<<"Enter Your Weight: ";

cin>>person.weight;

cout<<"\n-------------------------------------------------\n";

cout<<"\nFirst Name: "<<person.first\_name;

cout<<"\nLast Name: "<<person.last\_name;

cout<<"\nGender: "<<person.gender;

cout<<"\nBirth Date: "<<person.birth.day<<"/"<<person.birth.month<<"/"<<person.birth.year;

cout<<"\nHeight: "<<person.height;

cout<<"\nWeight: "<<person.weight<<"\n";

}

1. A) a is 4

b is 3

s1 is I should print second

s2 is I should print first

B) This is the function call of 1,

the addition of 0 and 5 is5.

This is the function call of 2,

the addition of 1 and 4 is5.

This is the function call of 3,

the addition of 2 and 3 is5.

This is the function call of 4,

the addition of 3 and 2 is5.

This is the function call of 5,

the addition of 4 and 1 is5.

1. The size of a\_union: 8-byte

The size of a\_struct: 16-byte

1. #include<iostream>

using namespace std;

#define FLOAT\_TYPE 1

#define CHAR\_TYPE 2

#define INT\_TYPE 3

struct var\_type {

int type\_in\_union;

union {

float un\_float;

char un\_char;

int un\_int; } vt\_un;

} var\_type;

void print\_vt( void ) {

switch( var\_type.type\_in\_union ) {

default:

printf("Unknown type in union\n");

break;

case FLOAT\_TYPE:

printf("%f\n", var\_type.vt\_un.un\_float);

break;

case CHAR\_TYPE:

printf("%c\n", var\_type.vt\_un.un\_char);

break;

case INT\_TYPE:

printf("%d\n", var\_type.vt\_un.un\_int);

break; } }

main() {

var\_type.type\_in\_union = FLOAT\_TYPE;

var\_type.vt\_un.un\_float = 3.5;

print\_vt();

var\_type.type\_in\_union = CHAR\_TYPE;

var\_type.vt\_un.un\_char = 'a';

print\_vt(); }