OOP MID TERM PAPER

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QUESTION NO #1 OUTPUTS

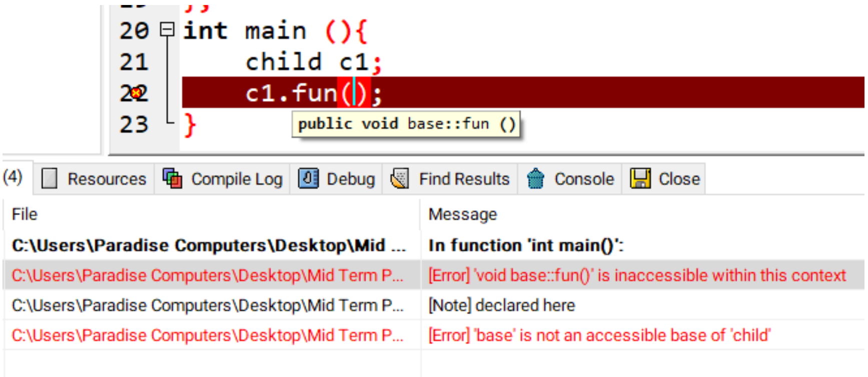
1.

```
class base {
    public:
    int a;
    protected :
    int b;
    public :
    void fun(){
        cout<<"THIS WORKS ";
    }
};
class child : private base{
    void fun1(){
    base::fun();
    base::b=0;
    }
};
int main (){
    child c1;
    c1.fun();
}
```

OUTPUT IS:

ERROR in line class child : private base because if the parent class kept private then the object created by the child class cannot access the fun() because the parent class is kept private.

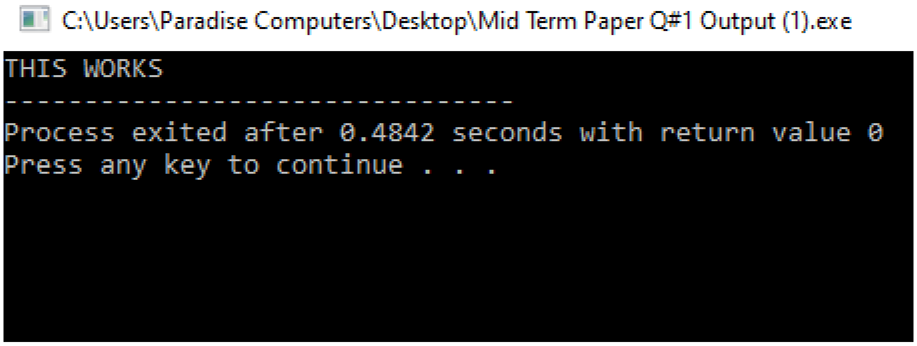
SCREEN SHOT OF ERROR:



```
int main (){
    child c1;
    c1.fun();
}           public void base::fun ()
```

File	Message
C:\Users\Paradise Computers\Desktop\Mid ...	**In function 'int main()':**
C:\Users\Paradise Computers\Desktop\Mid Term P...	[Error] 'void base::fun()' is inaccessible within this context
C:\Users\Paradise Computers\Desktop\Mid Term P...	[Note] declared here
C:\Users\Paradise Computers\Desktop\Mid Term P...	[Error] 'base' is not an accessible base of 'child'

REMOVING OF ERROR:



C:\Users\Paradise Computers\Desktop\Mid Term Paper Q#1 Output (1).exe

```
THIS WORKS
--------------------------------
Process exited after 0.4842 seconds with return value 0
Press any key to continue . . .
```

REASON:

child : public base just made the parent class public with the child class to access the fun() **with the object of child class.**

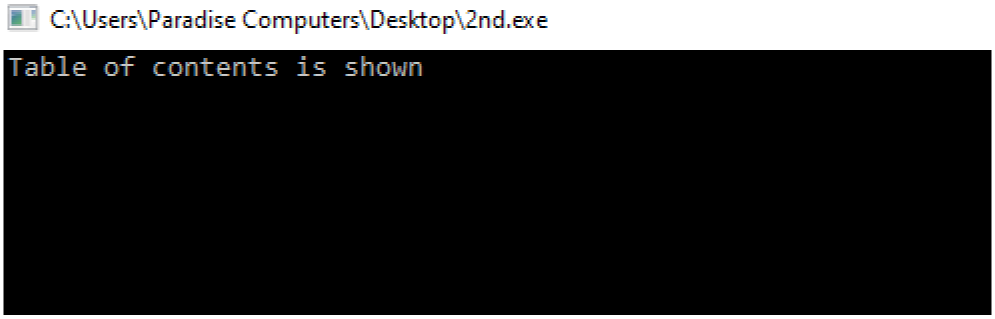
---

2. **OUTPUT:**

```
#include<iostream>
#include<list>
using namespace std;
class TableofContents{
        private:
                list<string>items;
                public:
                        TableofContents()
                        {
                                cout<<" Table of contents is shown\n";
```

```
            }
            void addItem(string item)
            {
                items.push_back(item);
            }
};
class Book{
public:
    TableofContents toc;
        list<string>sections;
        list<string>chapters;
                 Book() : toc(TableofContents()) {

        }
    };
int main()
{
    Book book1=Book();
    getchar();
}
```

OUTPUT:



```
Table of contents is shown
```

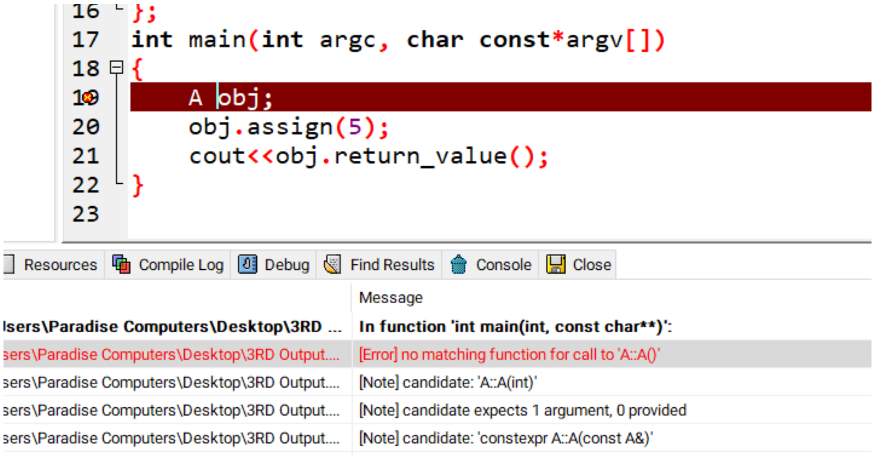
3. **OUTPUT:**

```
#include<iostream>
```

```
using namespace std;
class A{
        int a;
        public:
                A(int i){
                        a=i;
                }
                void assign(int i){
                        a=i;
                }
                int return_value()
                {
                        return a;
                }
};
int main(int argc, char const*argv[])
{
        A obj;
        obj.assign(5);
        cout<<obj.return_value();
}
```

ANSWER:

ERROR.

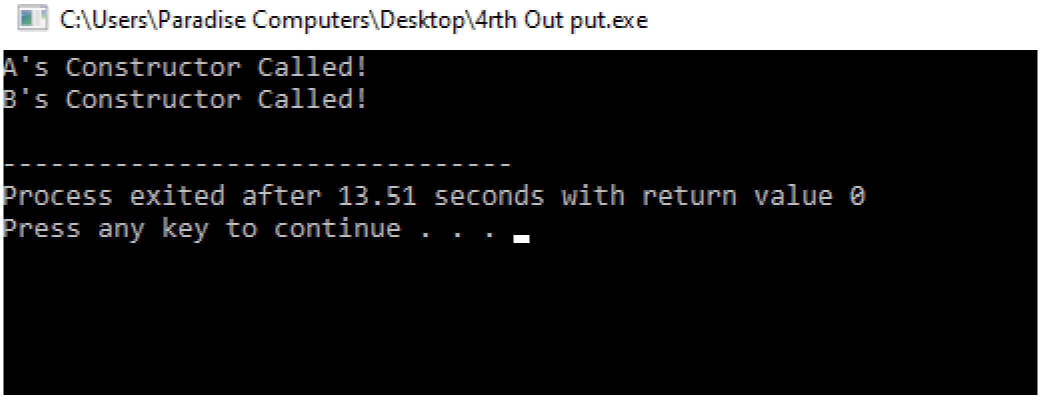


```
};
int main(int argc, char const*argv[])
{
    A obj;
    obj.assign(5);
    cout<<obj.return_value();
}
```

```
lsers\Paradise Computers\Desktop\3RD ...     In function 'int main(int, const char**)':
sers\Paradise Computers\Desktop\3RD Output....  [Error] no matching function for call to 'A::A()'
sers\Paradise Computers\Desktop\3RD Output....  [Note] candidate: 'A::A(int)'
sers\Paradise Computers\Desktop\3RD Output....  [Note] candidate expects 1 argument, 0 provided
sers\Paradise Computers\Desktop\3RD Output....  [Note] candidate: 'constexpr A::A(const A&)'
```

4. **OUTPUT:**

```
#include<iostream>
using namespace std;

class A{
        int a;
        public :
        A(){
                cout<<"A's Constructor Called!\n";
        }

};

class B {
        static A a;
        public :
        B(){
                cout<<"B's Constructor Called!\n";
        }
        static A get(){
                return a;
        }
};

A B::a;

int main (int argc,char const *argv[]){
        B b;
        A a1 = b.get();
        A a2 = b.get();
        A a3 = b.get();
}
```



C:\Users\Paradise Computers\Desktop\4rth Out put.exe

```
A's Constructor Called!
B's Constructor Called!

--------------------------------
Process exited after 13.51 seconds with return value 0
Press any key to continue . . .
```

Result: Just One Time A's Constructor Will Call.

QUESTION NO # 2

GIVE THE SHORT ANSWER OF THE FOLLOWING QUESTIONS

Q1. What is the purpose of Access modifiers in OOP languages?

Ans. The Access Modifiers are used to control the visibility and accessibility in the class members. They are used to restrict the access of the data members in the class. The three access modifiers are **Public, Private** and **Protected.**

Q2. If we want to access the private members of the class in the child class what do we need to change?

Ans. We just need to change the Private modifier to Public modifier to access the members of the class in the child class.

Q3. Determine the Accessibility of the functions and data members of the following Scenarios.

1. A private Data Member is declared in the class is accessible in the main function.

   Ans. Not Accessible

2. A protected function defined in the parent class by the child functions.

   Ans. Yes Accessible.

3. A public data member of the parent class by the object of the child class.

   Ans. Yes Accessible.

QUESTION NO #3

ERROR FINDING

CODE:

```
class B1{
        public:
          int i;  // There is an Error The correction is done
                int j;
                void g(int){
                }
};
class B2{
        public :
                int j;
                void H(){          // There is an Error The correction is done
}
};
class D: public B1, public B2     { // There is an Error The correction is done


        public:
                int i;
};
int main()
{
        D dobj;
        D *dptr=&dobj;
        dptr->i=5;
        dptr->i=10;  // There is an Error The correction is done

        D.g(int);  // There is an Error The correction is done

}
```

QUESTION NO: 5

you have to develop a game that has multiple characters . these characters share some common properties like id, name, maximum power and strength. There are other properties as well that they have their own like Doremon has properties like a list of names gadgets and the name of partner , Benten has the watch Name , a list of name powers and total charge of the watch . There are also some common actins that they are perform like walk , jump and eat .Doremon can show Gadgets , Launch attack and fly .Benten can perform the actions like rotate watch , fight and drive. Implement the game using Inheritance in C++.

ANSWER.

Code:

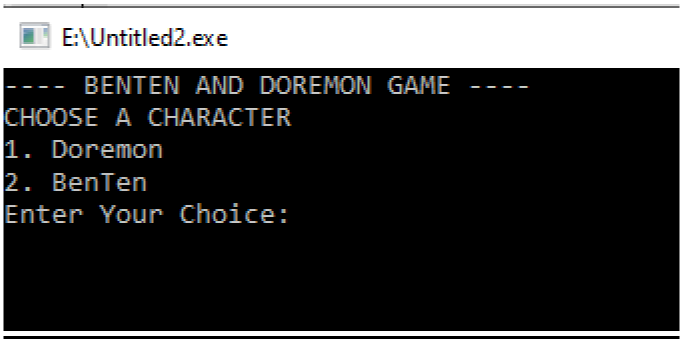
```
#include<iostream>

using namespace std;

class Game{

        public :

        int id;

        string name;

        string max_power;

        string strength;

        Game(){

                id = 0;

                name = "\0";

                max_power = "\0";

                strength = "\0";

        }

};


class Doremon : public Game {
```

```
public :
string List_of_name_of_Gadgets;
string Name_of_partner;

void Details_of_Doremon(){
        cout<<"ENTER THE ID:";
        cin>>id;
        cout<<"ENTER THE NAME:";
        cin>>name;
        cout<<"ENTER THE MAXIMUM POWER:";
        cin>>max_power;
        cout<<"ENTER THE STRENGTH:";
        cin>>strength;
        cout<<"ENTER THE LIST OF NAMES OF THE GADGETS:";
        cin>>List_of_name_of_Gadgets;
        cout<<"ENTER THE NAME OF THE PARTNER:";
        cin>>Name_of_partner;
}

void Show_Details(){
        cout<<id<<endl;
        cout<<name<<endl;
        cout<<max_power<<endl;
        cout<<strength<<endl;
        cout<<List_of_name_of_Gadgets<<endl;
        cout<<Name_of_partner<<endl;
}

void Performing_Tasks(){
        cout<<"Doremon is walking jumping and Eating!\n";
        cout<<"Doremon is showing Gadjets\n";
    }
};

class Ben_Ten : public Game {
    public :
    int total_charge;
    string watch_name;
    string name_of_powers;

    void Details_of_Benten(){
        cout<<"ENTER THE ID:";
        cin>>id;
        cout<<"ENTER THE NAME:";
        cin>>name;
        cout<<"ENTER THE MAXIMUM POWER:";
        cin>>max_power;
        cout<<"ENTER THE STRENGTH:";
        cin>>strength;
        cout<<"ENTER THE TOTAL CHARGE OF THE WATCH:";
        cin>>total_charge;
        cout<<"ENTER THE WATCH NAME:";
        cin>>watch_name;
        cout<<"ENTER NAME OF POWERS:";
        cin>>name_of_powers;
    }

        void Show_Details_BenTen(){
        cout<<id<<endl;
        cout<<name<<endl;
```

```
                cout<<max_power<<endl;
                cout<<strength<<endl;
                cout<<total_charge<<endl;
                cout<<watch_name<<endl;
                cout<<name_of_powers<<endl;
}
   void Performing_Tasks_Benten(){
                cout<<"BenTen is launching Attacks and Flying!\n";
                cout<<"BenTen is Rotating the Watch! \n";
        }
};

int main(){
        Doremon D1;
        Ben_Ten B;
        int Choice;
        cout<<"---- BENTEN AND DOREMON GAME ----\n";
        cout<<"CHOOSE A CHARACTER\n";
        cout<<"1. Doremon\n";
        cout<<"2. BenTen\n";
        cout<<"Enter Your Choice:";
        cin>>Choice;
        switch (Choice){
                case 1:
                D1.Details_of_Doremon();
                D1.Show_Details();
                D1.Performing_Tasks();
                break;
                case 2:
                B.Details_of_Benten();
                B.Show_Details_BenTen();
                B.Performing_Tasks_Benten();
                break;
                case 3:
                cout<<"Inbvalid Input";
                break;
        }
        }
```

OUTPUT SCREENSHOTS:

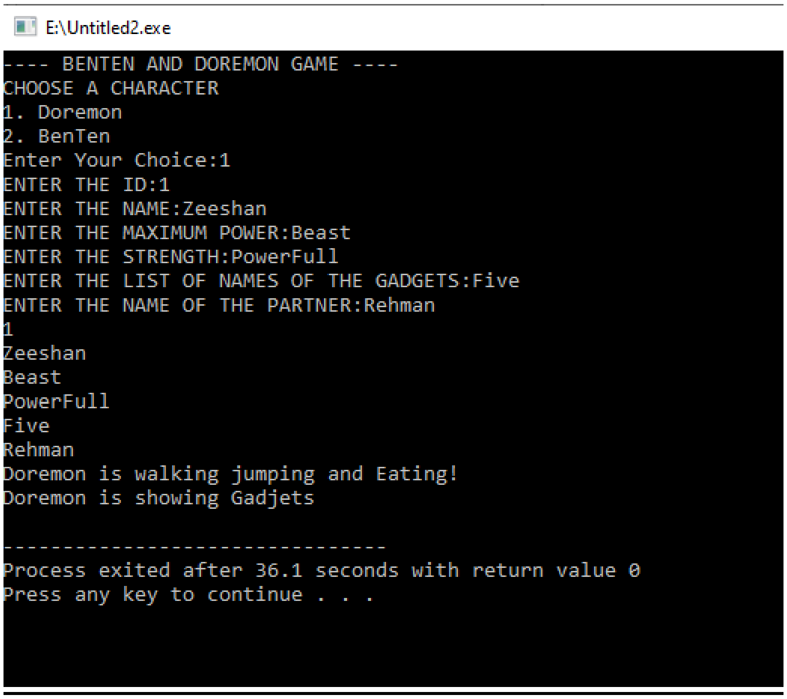
1st Simple Menu Of The Game:



E:\Untitled2.exe

```
---- BENTEN AND DOREMON GAME ----
CHOOSE A CHARACTER
1. Doremon
2. BenTen
Enter Your Choice:
```

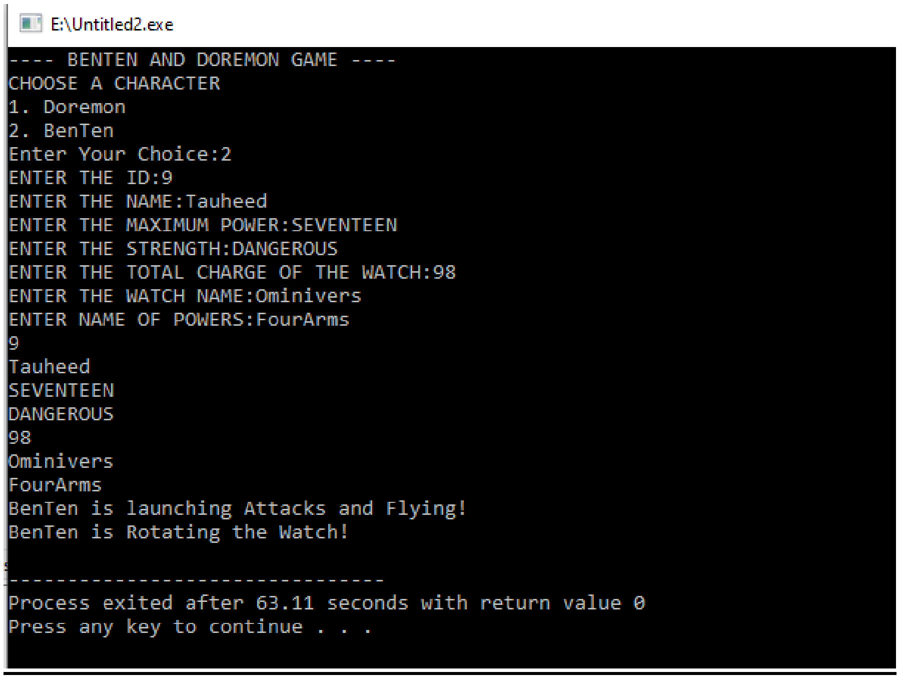
2ND When Doremon Is Playing:



E:\Untitled2.exe

```
---- BENTEN AND DOREMON GAME ----
CHOOSE A CHARACTER
1. Doremon
2. BenTen
Enter Your Choice:1
ENTER THE ID:1
ENTER THE NAME:Zeeshan
ENTER THE MAXIMUM POWER:Beast
ENTER THE STRENGTH:PowerFull
ENTER THE LIST OF NAMES OF THE GADGETS:Five
ENTER THE NAME OF THE PARTNER:Rehman
1
Zeeshan
Beast
PowerFull
Five
Rehman
Doremon is walking jumping and Eating!
Doremon is showing Gadjets

--------------------------------
Process exited after 36.1 seconds with return value 0
Press any key to continue . . .
```

3rd When Benten Is Playing:



```
---- BENTEN AND DOREMON GAME ----
CHOOSE A CHARACTER
1. Doremon
2. BenTen
Enter Your Choice:2
ENTER THE ID:9
ENTER THE NAME:Tauheed
ENTER THE MAXIMUM POWER:SEVENTEEN
ENTER THE STRENGTH:DANGEROUS
ENTER THE TOTAL CHARGE OF THE WATCH:98
ENTER THE WATCH NAME:Ominivers
ENTER NAME OF POWERS:FourArms
9
Tauheed
SEVENTEEN
DANGEROUS
98
Ominivers
FourArms
BenTen is launching Attacks and Flying!
BenTen is Rotating the Watch!

--------------------------------
Process exited after 63.11 seconds with return value 0
Press any key to continue . . .
```