Project 1

<Battle Game>

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Game's Name: Battle Game

Summary:

This game is similar with old cellphone game that a player picks up a character, who is set up in the game, and has a main story line to fight with bosses in the game. Due to the limitation of my own knowledge, this game only can be displayed as words form.

At the very beginning, players press "y" or "Y" to enter into the game and press "N" or "n" to exit the game. Then, game tells players what initial conditions they have such as HP, MP, and Damage. Later, players will meet up with the first boss and players have two options: fight or escape. Fight, players will fight with boss; escape, players will find another path and eventually die of a trap. A few rounds after, players defeat boss and step into next boss(Roshan). Same options for players whether they plan to fight or not. Then, if players' HP is too low, they will be asked to have HP flask and use ultimate mana spell.

Introduction:

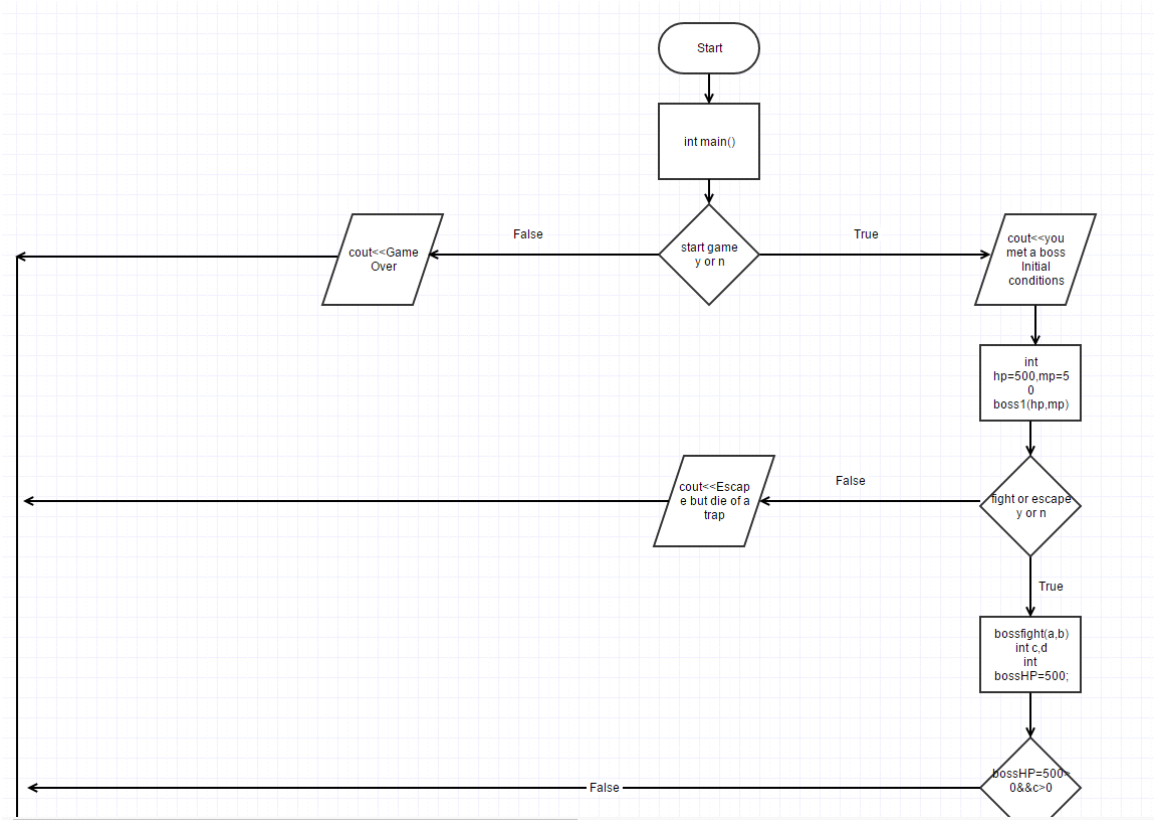
Project Size: 192 lines

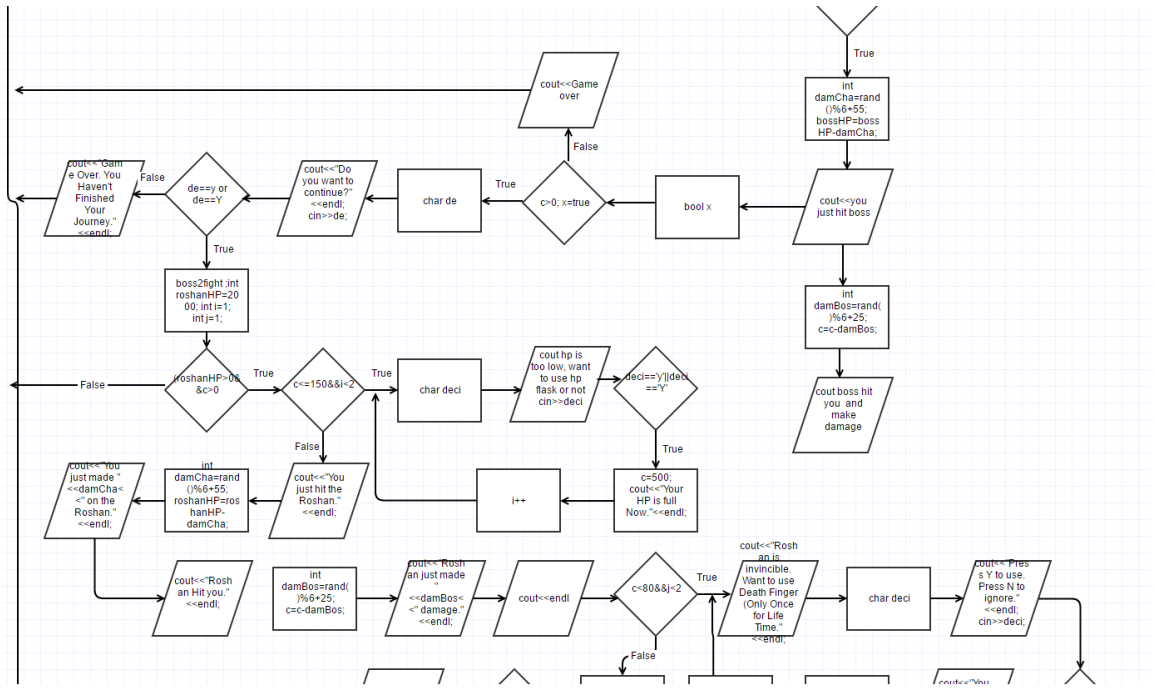
The number of variables: 15

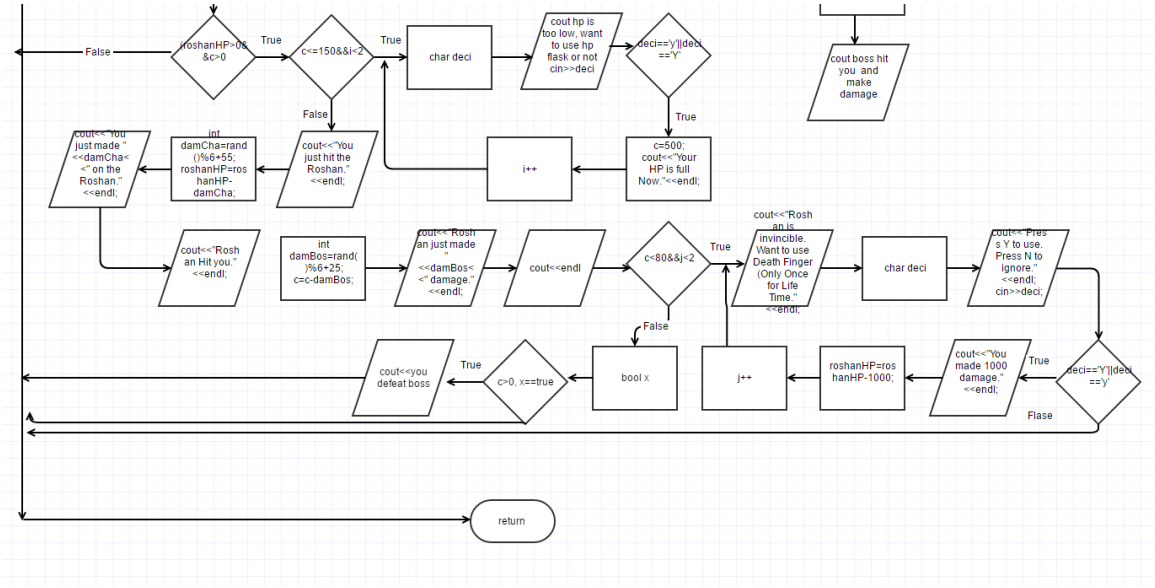
The methods: 4

In this project, due to that I liked battle game when I was young, I decided to build up this small game. However, I only used word form to display the character-boss fight. For the most of fights, I used "while" loop to determine their rounds so that they can have fair fights. Also, I added having-hp-flask part up into my program. This is one of the hardest part I have been through because at the very beginning character would have HP flasks whenever its hp is lower than 150 which is not what I required. My design is to let character have only one time to have HP flask. Also, the other hardest part is how to set proper, reasonable, and logic parameters for damage and HP.

Flow Charts


Start
int main()
start game y or n
False
True
cout<<Game Over
cout<<you met a boss Initial conditions
int hp=500,mp=50 boss1(hp,mp)
fight or escape y or n
False
cout<<Escape but die of a trap
True
bossfight(a,b) int c,d int bossHP=500;
bossHP=500>0&&c>0
False


True
int damCha=rand()%6+55; bossHP=bossHP-damCha;
cout<<you just hit boss
bool x
c>0; x=true
True
char de
cout<<"Do you want to continue?" <<endl; cin>>de;
de==y or de==Y
False
cout<<"Game Over. You Haven't Finished Your Journey." <<endl;
cout<<Game over
False
True
boss2fight;int roshanHP=2000; int i=1; int j=1;
int damBos=rand()%6+25; c=c-damBos;
cout boss hit you and make damage
roshanHP>0&&c>0
True
False
c<=150&&i<2
True
char deci
cout hp is too low, want to use hp flask or not cin>>deci
deci=='y'||deci=='Y'
True
False
c=500; cout<<"Your HP is full Now."<<endl;
i++
cout<<"You just hit the Roshan." <<endl;
int damCha=rand()%6+55; roshanHP=roshanHP-damCha;
cout<<"You just made " <<damCha<<" on the Roshan." <<endl;
cout<<"Roshan Hit you." <<endl;
int damBos=rand()%6+25; c=c-damBos;
cout<<"Roshan just made " <<damBos<<" damage." <<endl;
cout<<endl
c<80&&j<2
True
cout<<"Roshan is invincible. Want to use Death Finger (Only Once for Life Time." <<endl;
char deci
cout<<"Press Y to use. Press N to ignore." <<endl; cin>>deci;
False



Major Variables

Type	Variable Name	Description		Location
Integer	hp	health Pool		int main()
	mp	Mana Pool		int main()
	bossHP	Boss's initial HP		bossfight()
	damCha	Character's random damage		bossfight()
	damBos	Boss's random damage		bossfight()
	roshanHP	Roshan's Basic HP		boss2fight()
	i	Character only can use once of HP flask.		boss2fight()
	j	Character only once of ultima spell		boss2fight()
character	a	choice you are going to make		int main()
	choice	Fight with boss 1 or not		bossfight()
	de	decision to continue game or not		bossfight()
	deci_1	decision to use HP flask or not		boss2fight()
	deci_2	decision to use ultimate mana spell or not		boss2fight()
bool	x_1	Verify whether character win the fight or not		bossfight()
	x_2	Verify whether character win the fight or not		boss2fight()

Constructs

Chapter	Key Words	Location
2	Output cout	int main() bossfight() boss2fight()
3	Input cin	int main() bossfight() boss2fight()
	Mathematical Expression + - * / %	int main() bossfight() boss2fight()
	setw() Manioulators	int main()
	Random numbers srand(static_cast<unsigned	int main() bossfight() boss2fight()
4	Relational Operators >, <, =, ==	int main() bossfight() boss2fight()
	if Statement	int main() bossfight() boss2fight()
	else if Statement	int main() bossfight() boss2fight()
	switch Statement	boss1()
	Logical Operators && ||	int main() bossfight() boss2fight()
	Boolen bool	bossfight() boss2fight()
5	Increment	bossfight() boss2fight()
	while Loop	bossfight() boss2fight()
	Nested Loop	int main() bossfight() boss2fight()
6	Modular Programming	int main() bossfight() boss2fight()

Reference

Textbook: Tony Gaddis*, Starting out with C++ from Control Structures through Objects*, 8th Edition.

Program

```
#include <cstdlib>
#include <iostream>
#include <ctime>
#include <iomanip>

using namespace std;
//User Libraries

//Global Constants

//Function Prototype
```

```
int boss1(int,int);
void bossfight(int,int);
void boss2fight(int,int);

//Execution Starts Here
/*
 *
 */
int main(int argc, char** argv) {
   //Set up random number seed
   srand(static_cast<unsigned int>(time(0)));

   cout<<"Welcome To Your Journey."<<endl;
   cout<<endl<<endl;

   char a;//choice that you are going to make
   cout<<"Start or not?? Press any keys to start. "<<
         "Press N or n to quit."<<endl;

   //Input "no" choice
   cin>>a;
   if(a=='n'||a=='N')
   {
      cout<<"Game Over!!!"<<endl;
      return 0;
   }
```

```
   //Introduction to the character
   cout<<"Your Initial Condition: "<<endl;

   //Declare Variables;
   int hp=500,mp=50;//Health Pool, Mana Pool, Experience Pool

   //output initial condition of character
   cout<<"HP: "<<hp<<setw(4)<<"   MP: "<<mp<<"    Basic Damage: 55-
60."<<endl;

   boss1(hp,mp);
   return 0;
}

/*************************Make choice to fight or
not************************/
int boss1(int a,int b)
{
   char choice;
   cout<<"You met a boss. You want to fight or not."
         <<" Press n to escape, Press y to fight."<<endl;
   cin>>choice;
   //Make decision to fight with boss or not
   switch(choice)
   {
```

```
        case 'Y':
        case 'y': bossfight(a,b);break;

        case 'N':
        case 'n':
        {
            cout<<"You decide to choose a small path to avoid the boss, ";
            cout<<"but you die because of spike trap."<<endl;break;
        }
    }
    return a,b;
}

/********************Start to fight with the first
boss************************/
void bossfight(int c,int d)
{
    //c is character's HP, d is character's MP

    int bossHP=500;//Boss's initial HP

    while(bossHP>0&&c>0)
    {
        //Character's round to hit boss
        cout<<"You just hit the boss."<<endl;
```

```
   int damCha=rand()%6+55;//Character's random damage
   bossHP=bossHP-damCha;//Boss's hp left

   cout<<"You just made "<<damCha<<" on the boss."<<endl;

   //Boss' round to hit character
   cout<<"Boss Hit you."<<endl;
   int damBos=rand()%6+25;//Boss's random damage
   c=c-damBos;//Character's hp left
   cout<<"Boss just made "<<damBos<<" damage."<<endl;
   cout<<"Character's current HP is "<<c<<endl;
   cout<<endl<<endl;
}
bool x;
if(c>0) x=true;
if(x==true) cout<<"You defeated Boss."<<endl;
char de;
cout<<"Do you want to continue?"<<endl;
cin>>de;
if(de=='y'||de=='Y')
{
  //Second Boss Fight
boss2fight(c,d);
}
else
{
```

```
        cout<<"Game Over. You Haven't Finished Your Journey."<<endl;
    }



}

/************************Second Boss
Fight*************************************/
void boss2fight(int c,int d)
{
    cout<<"After a long travel, you meet a another Boss, Roshan."<<endl<<endl;
    cout<<"The Battle Begins."<<endl;
    int roshanHP=2000;//Roshan's Basic HP
    int i=1;//Character only can use once of HP flask.
    int j=1;//Character only once of ultima spell
    //HP flask taking
    while(roshanHP>0&&c>0)
    {
        //Have HP Flask
        while(c<=150&&i<2)
        {

            char deci;//make the decision to take hp flask or not
            cout<<"Warning!! Your HP is too low, have HP Flask?"<<endl;
            cout<<"Press Y to use. Press N to ignore."<<endl;
```

```
        cin>>deci;
        if(deci=='y'||deci=='Y')
        {
           c=500;
           cout<<"Your HP is full Now."<<endl;
        }
        i++;

}

//Character's round to hit boss
cout<<"You just hit the Roshan."<<endl;

int damCha=rand()%6+55;//Character's random damage
roshanHP=roshanHP-damCha;//Boss's hp left

cout<<"You just made "<<damCha<<" on the Roshan."<<endl;

//Roshan' round to hit character
cout<<"Roshan Hit you."<<endl;
int damBos=rand()%6+25;//Roshan's random damage
c=c-damBos;//Character's hp left
cout<<"Roshan just made "<<damBos<<" damage."<<endl;
cout<<"Character's current HP is "<<c<<endl;

cout<<endl<<endl;
```

```
        //Mana flask
       while(c<80&&j<2)
       {
          cout<<"Roshan is invincible. Want to use Death Finger (Only Once for Life Time."<<endl;
          char deci;
          cout<<"Press Y to use. Press N to ignore."<<endl;
          cin>>deci;
          if(deci=='Y'||deci=='y')
          {
             cout<<"You made 1000 damage."<<endl;
             roshanHP=roshanHP-1000;
          }
          j++;
       }
    }
    bool x;
    if(c>0) x=true;
    if(x==true) cout<<"You defeated Boss."<<endl;
    else cout<<"You have been Defeated."<<endl;



}
```