**HW1 CS520 Fall 2015**

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**\*/**

// Code in C++

using namespace std;

#include <iostream>

#include <string.h>

class BatAndBallGames

{

protected:

int playersPerTeam;

int lengthOfGame;

int score;

int overs;

public:

void display();

virtual void rulesSummary()=0;

void HallofFame();

void set(int scor, int over);

};

class Cricket:public BatAndBallGames

{

char batsmen[50];

char bowler[50];

public:

Cricket(char bowl[], char bats[]) //constructor of cricket with initial information

{

playersPerTeam=11;

lengthOfGame=50;

score=0;

overs=0;

strcpy(bowler,bowl);

strcpy(batsmen,bats);

cout<<"For Cricket:\nscore: "<<score<<endl<<"overs: "<<overs<<endl<<"opening bowler: "<<bowler<<endl<<"opening batsmen: "<<batsmen<<endl<<"PlayersPerTeam will be "<<playersPerTeam<<endl<<"Length of Game will be "<<overs<<" overs";

}

void set(int scor,int over) //set values of score and overs during match

{

score=scor;

overs=over;

}

void display() //displaying current score and overs

{

cout<<endl<<"current score:"<<score<<endl<<"current overs:"<<overs<<endl;

}

void rulesSummary() //Rules of cricket

{

cout<<"1. Cricket is a game played with a bat and ball on a large field, known as a ground, between two teams of 11 players each."<<endl<<"2. The object of the game is to score runs when at bat and to put out, or dismiss, the opposing batsmen when in the field."<<endl<<"3. The twelfth man is not allowed to bowl, bat, wicket keep or captain the team. His sole duty is to act as a substitute fielder."<<endl<<"4. To apply the law and make sure the cricket rules are upheld throughout the game there are two umpires in place during games. Umpires are responsible for making decisions and notifying the scorers of these decisions."<<endl<<"5. Two umpires are in place on the playing field while there is also a third umpire off the field who is in charge of video decisions.";

}

void HallofFame()

{

cout<<"\n"<<"1.Sachin Tendulkar"<<endl<<"2.MahendraSingh Dhoni"<<endl<<"3.AB De viliers"<<endl<<"4.Don Bradman"<<endl<<"5.Virat Kohli"<<endl<<"6.Rickey Pointing"<<endl<<"7.Glenn Mcgrath"<<endl<<"8.Vivian Richards"<<endl<<"9.Chris Gayle"<<endl<<"10.Mitchell Starc";

}

void match\_complete() //To check whether the match is complete or not

{

if(overs==50)

{

cout<<"match is over";

}

else

{

cout<<"match is not finished"<<endl;

}

}

void current\_batsmen\_bowler(char bats[],char bowl[]) //To set and get curent batsmen and bowler

{

strcpy(batsmen,bats);

strcpy(bowler,bowl);

cout<<"current batsmen: "<<batsmen<<endl<<"current bowler :"<<bowler<<endl;

}

};

class Baseball:public BatAndBallGames

{

char captains[50];

char umpires[50];

public:

Baseball() //constructor of baseball class

{

score=0;

overs=0;

playersPerTeam=9;

lengthOfGame=9;

cout<<"\n\n\n For Baseball:\nplayersPerTeam will be "<<playersPerTeam<<endl<<"Length of the game will be "<<lengthOfGame<<" innings"<<endl;

}

void set(int scor,int over) //To set current score and overs

{

score=scor;

overs=over;

}

void display() //display current score and overs

{

cout<<"current score: "<<score<<endl<<"current overs: "<<overs<<endl;

}

void rulesSummary() //Display rules of Baseball

{

cout<<"RulesSummary:\n1.The bat is a smooth, round stick not more than 2 3/4 inches in diameter at the thickest part and not more than 42 inches in length. The most common length used is 35 inches"<<endl<<"2.Each fielder, may use or wear a leather glove. A FIELDER is any defensive player."<<endl<<"3.The objective of each team is to win by scoring more runs than the opponent."<<endl<<"4.A BATTER is an offensive player who takes his position in the batter's box and attempts to hit a ball thrown to him by the pitcher."<<endl<<"5.The winner of the game shall be that team which shall have scored, in accordance with these rules, the greater number of runs at the conclusion of a regulation game"<<endl;

}

void HallofFame()

{

cout<<endl<<"1.Babe Ruth"<< endl<< "2.Alex Rodrigues"<<endl<<"3.Miguel Cabrera"<<endl<<"4.Barry Bonds"<<endl<<"5.Albert Pujols"<<endl<<"6.Mike Trout"<<endl<<"7.Derek Jetter"<<endl<<"8.Willie Mays"<<endl<<"9.Hank Aaron"<<endl<<"10.Ty Cobb";

}

void set\_captain\_umpire(char cap[], char ump[]) //set umpires and captains of the match

{

strcpy(captains,cap);

strcpy(umpires,ump);

}

void get\_captain\_umpire() //get umpires and captains of the match

{

cout<<"captains: "<<captains<<endl<<"umpires: "<<umpires<<endl;

}

};

int main()

{

Cricket x("Johnson","Dhoni & Raina");

x.set(100,10);

x.display();

x.rulesSummary();

x.match\_complete();

x.current\_batsmen\_bowler("Tendulkar","Malinga");

x. HallofFame();

Baseball y;

y.set\_captain\_umpire("Oliver Quin & Barry Alen","Alex & Martin & John & Harvey");

y.get\_captain\_umpire();

y.set(200,30);

y.display();

y.rulesSummary();

y. HallofFame();

return 0;

}

Compiler code:

CC 1.cc

"1.cc", line 135: Warning: String literal converted to char\* in formal argument bowl in call to Cricket::Cricket(char\*, char\*).

"1.cc", line 135: Warning: String literal converted to char\* in formal argument bats in call to Cricket::Cricket(char\*, char\*).

"1.cc", line 141: Warning: String literal converted to char\* in formal argument bats in call to Cricket::current\_batsmen\_bowler(char\*, char\*).

"1.cc", line 141: Warning: String literal converted to char\* in formal argument bowl in call to Cricket::current\_batsmen\_bowler(char\*, char\*).

"1.cc", line 148: Warning: String literal converted to char\* in formal argument cap in call to Baseball::set\_captain\_umpire(char\*, char\*).

"1.cc", line 148: Warning: String literal converted to char\* in formal argument ump in call to Baseball::set\_captain\_umpire(char\*, char\*).

6 Warning(s) detected.

> g++ 1.cc

Running of code:

> ./a.out

score: 0

overs: 0

opening bowler: Johnson

opening batsmen: Dhoni & Raina

PlayersPerTeam will be 11

Length of Game will be 0 overs

current score:100

current overs:10

1. Cricket is a game played with a bat and ball on a large field, known as a ground, between two teams of 11 players each.

2. The object of the game is to score runs when at bat and to put out, or dismiss, the opposing batsmen when in the field.

3. The twelfth man is not allowed to bowl, bat, wicket keep or captain the team. His sole duty is to act as a substitute fielder.

4. To apply the law and make sure the cricket rules are upheld throughout the game there are two umpires in place during games. Umpires are responsible for making decisions and notifying the scorers of these decisions.

5. Two umpires are in place on the playing field while there is also a third umpire off the field who is in charge of video decisions.match is not finished

current batsmen: Tendulkar

current bowler :Malinga

1.Sachin Tendulkar

2.MahendraSingh Dhoni

3.AB De viliers

4.Don Bradman

5.Virat Kohli

6.Rickey Pointing

7.Glenn Mcgrath

8.Vivian Richards

9.Chris Gayle

10.Mitchell Starc

playersPerTeam will be 9

Length of the game will be 9 innings

captains: Oliver Quin & Barry Alen

umpires: Alex & Martin & John & Harvey

current score: 200

current overs: 30

RulesSummary:

1.The bat is a smooth, round stick not more than 2 3/4 inches in diameter at the thickest part and not more than 42 inches in length. The most common length used is 35 inches

2.Each fielder, may use or wear a leather glove. A FIELDER is any defensive player.

3.The objective of each team is to win by scoring more runs than the opponent.

4.A BATTER is an offensive player who takes his position in the batter's box and attempts to hit a ball thrown to him by the pitcher.

5.The winner of the game shall be that team which shall have scored, in accordance with these rules, the greater number of runs at the conclusion of a regulation game

1.Babe Ruth

2.Alex Rodrigues

3.Miguel Cabrera

4.Barry Bonds

5.Albert Pujols

6.Mike Trout

7.Derek Jetter

8.Willie Mays

9.Hank Aaron

10.Ty Cobb>

// Java code

abstract class BatandBallGames

{

protected int playersPerTeam;

protected int lengthOfGame;

protected int score;

protected int overs;

abstract public void display();

abstract public void rulesSummary();

abstract public void HallofFame();

abstract public void set(int scor,int over);

}

class Cricket extends BatandBallGames

{

String batsmen;

String bowler;

Cricket(String bowl,String bats)

{

score=0;

overs=0;

bowler=bowl;

batsmen=bats;

System.out.println("\nscore: "+score+"\n"+"overs: "+overs+"\n"+"opening bowler: "+bowler+"\n"+"opening batsmen: "+ batsmen+"\n");

}

@Override

public void display() {

System.out.println("\ncurrent score: "+score+"\n"+"current overs: "+overs+"\n");

}

@Override

public void rulesSummary() {

System.out.println("\nCricket Rules:\n1. Cricket is a game played with a bat and ball on a large field, known as a ground, between two teams of 11 players each."+"\n2.The object of the game is to score runs when at bat and to put out, or dismiss, the opposing batsmen when in the field."+"\n3. The twelfth man is not allowed to bowl, bat, wicket keep or captain the team. His sole duty is to act as a substitute fielder."+"\n4.To apply the law and make sure the cricket rules are upheld throughout the game there are two umpires in place during games. Umpires are responsible for making decisions and notifying the scorers of these decisions."+"5.Two umpires are in place on the playing field while there is also a third umpire off the field who is in charge of video decisions.\n");

}

@Override

public void HallofFame() {

System.out.println("\n1. Sachin Tendulkar\n2. MahendraSingh Dhoni\n3. AB Devillers\n4. Don Bradman\n5.Virat Kohli\n6.Ricky Pointing\n7. Glenn Mcgrath\n8. Vivian Richards\n9. Chris Gayle\n10. Mitchell Starc\n");

}

@Override

public void set(int scor, int over) {

score=scor;

overs=over;

}

public void match\_complete()

{

if(overs==50)

{

System.out.println("\nmatch over\n");

}

else

{

System.out.println("\nmatch is not finished\n");

}

}

public void current\_batsmen\_bowler(String bats,String bowl)

{

batsmen=bats;

bowler=bowl;

}

}

class Baseball extends BatandBallGames

{

String captains;

String umpires;

Baseball()

{

score=0;

overs=0;

}

@Override

public void display() {

System.out.println("\nscore: "+score+"\novers: "+overs+"\n");

}

@Override

public void rulesSummary() {

System.out.println("\nBaseball Rules:\n1.The bat is a smooth, round stick not more than 2 3/4 inches in diameter at the thickest part and not more than 42 inches in length. The most common length used is 35 inches"+"\n2.Each fielder, may use or wear a leather glove. A FIELDER is any defensive player."+"\n3.The objective of each team is to win by scoring more runs than the opponent."+"\n4.A BATTER is an offensive player who takes his position in the batter's box and attempts to hit a ball thrown to him by the pitcher."+"\n5.The winner of the game shall be that team which shall have scored, in accordance with these rules, the greater number of runs at the conclusion of a regulation game.\n");

}

@Override

public void HallofFame() {

System.out.println("\n1. Babe Ruth\n2. Alex Rodrigues\n3. Miguel Cabrera\n4. Barry Bonds\n5. Albert Pujols\n6. Mike Trout\n7. Darek Jetter\n8. Willie Mays\n9. Hank Aaron\n10. Ty Cobb\n");

}

@Override

public void set(int scor, int over) {

score=scor;

overs=over;

}

public void set\_captain\_umpire(String cap,String ump)

{

captains=cap;

umpires=ump;

}

public void get\_captain\_umpire()

{

System.out.println("\ncaptains: "+captains+"\numpires: "+umpires+"\n");

}

}

public class hw\_java {

public static void main(String[] args)

{

Cricket x=new Cricket("Johnson","Dhoni & Raina");

x.set(100,10);

x.display();

x.rulesSummary();

x.match\_complete();

x.current\_batsmen\_bowler("Tendulkar", "Brat Lee");

Baseball y=new Baseball();

y.rulesSummary();

y.set\_captain\_umpire("Oliver & Barry", "Alex,Martin,John&Harvey");

y.get\_captain\_umpire();

y.set(200, 15);

y.display();

}

}

Compiler code:

javac hw\_java.java;

java hw\_java;

Running of code:

score: 0

overs: 0

opening bowler: Johnson

opening batsmen: Dhoni & Raina

current score: 100

current overs: 10

Cricket Rules:

1. Cricket is a game played with a bat and ball on a large field, known as a ground, between two teams of 11 players each.

2.The object of the game is to score runs when at bat and to put out, or dismiss, the opposing batsmen when in the field.

3. The twelfth man is not allowed to bowl, bat, wicket keep or captain the team. His sole duty is to act as a substitute fielder.

4.To apply the law and make sure the cricket rules are upheld throughout the game there are two umpires in place during games. Umpires are responsible for making decisions and notifying the scorers of these decisions.5.Two umpires are in place on the playing field while there is also a third umpire off the field who is in charge of video decisions.

match is not finished

Baseball Rules:

1.The bat is a smooth, round stick not more than 2 3/4 inches in diameter at the thickest part and not more than 42 inches in length. The most common length used is 35 inches

2.Each fielder, may use or wear a leather glove. A FIELDER is any defensive player.

3.The objective of each team is to win by scoring more runs than the opponent.

4.A BATTER is an offensive player who takes his position in the batter's box and attempts to hit a ball thrown to him by the pitcher.

5.The winner of the game shall be that team which shall have scored, in accordance with these rules, the greater number of runs at the conclusion of a regulation game.

captains: Oliver & Barry

umpires: Alex,Martin,John&Harvey

score: 200

overs: 15

//Java Code

abstract class BatandBallGames

{

protected int playersPerTeam;

protected int lengthOfGame;

protected int score;

protected int overs;

abstract public void display();

abstract public void rulesSummary();

abstract public void HallofFame();

abstract public void set(int scor,int over);

}

class Cricket extends BatandBallGames

{

String batsmen;

String bowler;

Cricket(String bowl,String bats)

{

score=0;

overs=0;

bowler=bowl;

batsmen=bats;

System.out.println("\nConstructor of cricket:\nscore: "+score+"\n"+"overs: "+overs+"\n"+"opening bowler: "+bowler+"\n"+"opening batsmen: "+ batsmen+"\n");

}

@Override

public void display()

//display current score and overs

{

System.out.println("\nDisplay function:\ncurrent score: "+score+"\n"+"current overs: "+overs+"\n");

}

@Override

public void rulesSummary()

//rules of Cricket

{

System.out.println("\nCricket Rules:\n1. Cricket is a game played with a bat and ball on a large field, known as a ground, between two teams of 11 players each."+"\n2.The object of the game is to score runs when at bat and to put out, or dismiss, the opposing batsmen when in the field."+"\n3. The twelfth man is not allowed to bowl, bat, wicket keep or captain the team. His sole duty is to act as a substitute fielder."+"\n4.To apply the law and make sure the cricket rules are upheld throughout the game there are two umpires in place during games. Umpires are responsible for making decisions and notifying the scorers of these decisions."+"5.Two umpires are in place on the playing field while there is also a third umpire off the field who is in charge of video decisions.\n");

}

@Override

public void HallofFame()

{

System.out.println("\nHall of fame:\n1. Sachin Tendulkar\n2. MahendraSingh Dhoni\n3. AB Devillers\n4. Don Bradman\n5.Virat Kohli\n6.Ricky Pointing\n7. Glenn Mcgrath\n8. Vivian Richards\n9. Chris Gayle\n10. Mitchell Starc\n");

}

@Override

public void set(int scor, int over)

//setting current score and over

{

score=scor;

overs=over;

}

public void match\_complete()

//checking whether the match is over or not?

{

System.out.println("\nChecking whether match is over or not?");

if(overs==50)

{

System.out.println("match over\n");

}

else

{

System.out.println("match is not finished\n");

}

}

public void current\_batsmen\_bowler(String bats,String bowl)

//setting current bowler and batsman information

{

batsmen=bats;

bowler=bowl;

}

}

class Baseball extends BatandBallGames

{

String captains;

String umpires;

Baseball() //constructor with setting parameters to //zero

{

score=0;

overs=0;

}

@Override

public void display()

//display score and overs

{

System.out.println("\nDisplay function:\nscore: "+score+"\novers: "+overs+"\n");

}

@Override

public void rulesSummary()

// rules summary of baseball

{

System.out.println("\nBaseball Rules:\n1.The bat is a smooth, round stick not more than 2 3/4 inches in diameter at the thickest part and not more than 42 inches in length. The most common length used is 35 inches"+"\n2.Each fielder, may use or wear a leather glove. A FIELDER is any defensive player."+"\n3.The objective of each team is to win by scoring more runs than the opponent."+"\n4.A BATTER is an offensive player who takes his position in the batter's box and attempts to hit a ball thrown to him by the pitcher."+"\n5.The winner of the game shall be that team which shall have scored, in accordance with these rules, the greater number of runs at the conclusion of a regulation game.\n");

}

@Override

public void HallofFame() {

System.out.println("\nHall of Fame:\n1. Babe Ruth\n2. Alex Rodrigues\n3. Miguel Cabrera\n4. Barry Bonds\n5. Albert Pujols\n6. Mike Trout\n7. Darek Jetter\n8. Willie Mays\n9. Hank Aaron\n10. Ty Cobb\n");

}

@Override //Setting current overs and score

public void set(int scor, int over) {

score=scor;

overs=over;

}

public void set\_captain\_umpire(String cap,String ump)

//set captain and umpire

{

captains=cap;

umpires=ump;

}

public void get\_captain\_umpire()

//Get umpire and captain names

{

System.out.println("\nGetting captains and umpire name:\ncaptains: "+captains+"\numpires: "+umpires+"\n");

}

}

public class 100 {

public static void main(String[] args)

{

Cricket x=new Cricket("Johnson","Dhoni & Raina");

x.set(100,10);

x.display();

x.rulesSummary();

x.HallofFame();

x.match\_complete();

x.current\_batsmen\_bowler("Tendulkar", "Brat Lee");

Baseball y=new Baseball();

y.rulesSummary();

y.set\_captain\_umpire("Oliver & Barry", "Alex,Martin,John&Harvey");

y.get\_captain\_umpire();

y.HallofFame();

y.set(200, 15);

y.display();

}

}

Compiling and Running the code:

> javac hw\_java.java

> java hw\_java

Constructor of cricket:

score: 0

overs: 0

opening bowler: Johnson

opening batsmen: Dhoni & Raina

Display function:

current score: 100

current overs: 10

Cricket Rules:

1. Cricket is a game played with a bat and ball on a large field, known as a ground, between two teams of 11 players each.

2.The object of the game is to score runs when at bat and to put out, or dismiss, the opposing batsmen when in the field.

3. The twelfth man is not allowed to bowl, bat, wicket keep or captain the team. His sole duty is to act as a substitute fielder.

4.To apply the law and make sure the cricket rules are upheld throughout the game there are two umpires in place during games. Umpires are responsible for making decisions and notifying the scorers of these decisions.5.Two umpires are in place on the playing field while there is also a third umpire off the field who is in charge of video decisions.

Hall of fame:

1. Sachin Tendulkar

2. MahendraSingh Dhoni

3. AB Devillers

4. Don Bradman

5.Virat Kohli

6.Ricky Pointing

7. Glenn Mcgrath

8. Vivian Richards

9. Chris Gayle

10. Mitchell Starc

Checking whether match is over or not?

match is not finished

Baseball Rules:

1.The bat is a smooth, round stick not more than 2 3/4 inches in diameter at the thickest part and not more than 42 inches in length. The most common length used is 35 inches

2.Each fielder, may use or wear a leather glove. A FIELDER is any defensive player.

3.The objective of each team is to win by scoring more runs than the opponent.

4.A BATTER is an offensive player who takes his position in the batter's box and attempts to hit a ball thrown to him by the pitcher.

5.The winner of the game shall be that team which shall have scored, in accordance with these rules, the greater number of runs at the conclusion of a regulation game.

Getting captains and umpire name:

captains: Oliver & Barry

umpires: Alex,Martin,John&Harvey

Hall of Fame:

1. Babe Ruth

2. Alex Rodrigues

3. Miguel Cabrera

4. Barry Bonds

5. Albert Pujols

6. Mike Trout

7. Darek Jetter

8. Willie Mays

9. Hank Aaron

10. Ty Cobb

Display function:

score: 200

overs: 15