NIM GAME - JAVA

# ALOGARITHM OF THE GAME

1.Start

2.Move on to game and start rules of game

3.select the name and mit student number of player 1

4.select the name and mit student number of player2

5.shall we start the game(Y/N)

6.In the loop wherethe program is excuted.(do)

7.If (pile>=30&&pile<=50)

a)Declare the variables Stone\_num, Pick\_num, x, y, optimal\_num, z=0

b)Player one is required to give number of stones in the pile

c)Scan values as total number of values

d)scan Pick\_num in which number of stones taken out by player 1

e)IF Pick\_num>=1&&V<=3 THEN Stone\_num=Ston\_num-Pick\_num

f)Else (give the correct number between 1 and 3)

g)say the total number of stones till left

h)If Stone\_num==0 then player1 win

i)Are u wishing to play game again

j)scan the value of x give the number of stones player 2 take away

k)If x>=1&&x<=3 then u=u-x

l)Else (enter the correct number between 1 and 3)

m)give the number of stones still left

n)if u==0 then player won the game

o)Are you interested in playing game again(Y/N)

p)Call computer method

q)If u==0 then computer won

r)Exit loop

8 while Sta ==”Y”

9 Define computer functions as if a%3=0 then take 3 stones

10 Else remove 2 stones

11 exit

# Codes:

**package** nim;

**import** java.util.Scanner;

**public** **class** nimgame

{

**public** **static** **void** main(String[] args)

{

String ply1, ply2, stu\_num1, stu\_num2, Sta=**null**;

**int** Stone\_num, Pick\_num1, Pick\_num2, optimal\_num = 0;

/\* players information\*/

Scanner n1 = **new** Scanner(System.in);

System.out.println("player 1 name is: ");

ply1 = n1.next();

Scanner n3 = **new** Scanner(System.in);

System.out.println("players 1 student number is: ");

Stu\_num1 = n3.next();

Scanner n2 = **new** Scanner(System.in);

System.out.println("player 2 name is");

ply2 = n2.next();

Scanner n4 = **new** Scanner(System.in);

System.out.println("players 2 student number is: ");

Stu\_Num2 = n4.next();

/\*game rule description\*/

System.out.println("Nim game is now beginning ");

System.out.println("Please choose the number of stones you want to pick up between 1 to 3");

System.out.println("The last player who pick the stone will win ");

Scanner n8 = **new** Scanner(System.in);

System.out.println("can we begin the game : (Y/N)");

Sta= n8.next();

**while** (Sta == "Y");

{

Scanner n5 = **new** Scanner(System.in);

System.out.println("give the number of stones in the box. It should be between 30 to 50");

Stone\_num = n5.nextInt();

**if** ( Stone\_num >=30 && Stone\_num <=50 )

**do** {

/\*player 1 picks the number of stone he wants\*/

Scanner n6 = **new** Scanner(System.in);

System.out.println(" The number of stones player1 picks ");

Pick\_num1= n6.nextInt();

/\*player 1 picks the correct number between 1 to 3\*/

**if** (Pick\_num1>=1 && Pick\_num1<=3)

{

Stone\_num = Stone\_num - Pick\_num1;

System.out.println( "number of stones left left is: " + Stone\_num );

}

/\*player 1 picks the wrong number and needs to pick again\*/

**else**

{

System.out.println("give the correct number between 1 and 3");

Pick\_num1 = n4.nextInt();

Stone\_num = Stone\_num - Pick\_num1;

System.out.println("number of stones left left is: " + Stone\_num);

}

/\*decide if player 1 is the player who picks the last stone\*/

**if** (Stone\_num ==0) /\* left stone number is zero means the last stone is picked by the player \*/

{

System.out.println("Winner is : name of player = "+ply1+ "and student number is " +Stu\_num1);

/\*start a new game\*/

Scanner n11 = **new** Scanner(System.in);

System.out.println("can we begin the game : (Y/N)");

Sta= n11.next();

}

/\*player 2 picks the number of stone he wants\*/

Scanner n7 = **new** Scanner(System.in);

System.out.println("The number of stones player2 picks ");

Pick\_num2 = n7.nextInt();

/\*player 2 picks the correct number between 1 to 3\*/

**if** (Pick\_num2 >=1 && Pick\_num2 <=3)

{

Stone\_num = Stone\_num - Pick\_num2;

System.out.println("number of stones left left is:" + Stone\_num);

}

/\*player 2 picks the wrong number and needs to pick again\*/

**else**

{

System.out.println("select the correct number between 1 and 3");

Pick\_num2 = n5.nextInt();

Stone\_num = Stone\_num - Pick\_num2;

System.out.println("number of stones left is: " + Stone\_num);

}

/\*decide if player 2 is the player who picks the last stone\*/

**if**(Stone\_num ==0) /\* left stone number is zero means the last stone is picked by the player \*/

{

System.out.println(Winner is : name of player = "+ply2+ "and student number is " +Stu\_num2);

/\*start a new game\*/

Scanner n12 = **new** Scanner(System.in);

System.out.println("can we begin the game : (Y/N)");

Sta= n12.next();

}

**if** (Stone\_num ==0) {System.out.println("CONGRATS");}

**else**

{

optimal\_num = optimal (Stone\_num);

System.out.println("System selected stones "+ optimal\_num + "stones");

Stone\_num = Stone\_num - optimal\_num;

System.out.println("total number of stones left in box " + Stone\_num);

**if** (Stone\_num ==0)

{

System.out.println("system won");

Scanner n13 = **new** Scanner(System.in);

System.out.println("can we begin the game : (Y/N)");

Sta= n13.next();

}

}

}**while** (Stone\_num >0);

**else**

System.out.println("choose the correct number of stones between 30 and 50 ");

Stone\_num = n3.nextInt();

}

}

**public** **static** **int** optimal (**int** Stone\_num)

{

**int** optimal\_num;

**if** (Stone\_num %3==0)

{

optimal\_num =2;

}

**else**

{

optimal\_num =1;

}

**return** optimal\_num;

}

}