**Program 1 :**

**Code –**

import java.util.Scanner; //imported Scanner class

public class IntToWord {

public static void main(String[] args){

Scanner sc = new Scanner(System.in);

System.out.println("Please enter a number from(0 to 1000):");

int number = sc.nextInt(); //Taking user input.

//Here if statement will check whether the given number is in range

if(number > 0 && number < 1000){

int numberToWord = number;

int onesTensDigit= numberToWord % 100;

//Here we are calling onesTens method to convert ones and tens digit to word.

String onesTens = onesTens(onesTensDigit);

//If number is greater than 99 than it will call hundreds method which will return

if(number > 99){

numberToWord = numberToWord/100;

String hundreds = hundreds(numberToWord);

System.out.println(hundreds+" "+onesTens+" dollars");

}

else{

System.out.println(onesTens+" dollars");}

}

else{

System.out.println("The value you entered is out of range.");

}

}

/\*\*

\* In this method (onesTens) it will return word of ones and tens digit.

\* @param x this parameter contains the value of ones and tens digit .

\* @return String it will return word of ones and tens digit .

\*/

public static String onesTens(int x){

String[] ones = {" ","one","two","three","four","five","six","seven","eight","nine"};

String[] elevens = {"eleven","twelve","thirteen","fourteen","fifteen","sixteen","seventeen","eighteen","nineteen"};

String[] tens = {" ","ten","twenty","thirty","forty","fifty","sixty","seventy","eighty","ninety"};

int onesAndTens = x ;

if(onesAndTens >= 11 && onesAndTens<=19){

int y = onesAndTens % 10;

return elevens[y-1];

}

else if(onesAndTens > 19 || onesAndTens == 10) {

int oneDigit = onesAndTens%10;

onesAndTens = onesAndTens / 10;

int tensDigit = onesAndTens%10;

return (tens[tensDigit]+" "+ones[oneDigit]);

}

else {

int oneDigit = onesAndTens%10;

return ones[oneDigit];

}

}

/\*\*

\* this method will return word of hundredth digit.

\* @param hundredDigit This parameter contains hundredth digit.

\* @return String it will return word of hundred digit.

\*/

public static String hundreds(int hundredDigit){

String[] hundreds = {" ","one hundred","two hundred","three hundred","four hundred","five hundred","six hundred","seven hundred","eight hundred","nine hundred"};

return hundreds[hundredDigit];

}

}

**Sample Output 1 –**

**Text

Description automatically generated**

**Sample Output 2 –Text

Description automatically generated**

**Sample Output 3 –**

**Text

Description automatically generated**

**Sample Output 4 –**

**Text

Description automatically generated**

**Program 2 –**

**Code –**

import java.util.Scanner; //imported Scanner class

public class Pascal {

public static void main(String[] args) {

Scanner s = new Scanner(System.in);

System.out.println("Enter the number of rows : ");

long rows = s.nextInt(); // user input for number of rows

long ncr = 1;

long i, j;

//This for loop is used for printing number of rows .

for (i = rows; i >= 0; i--) {

//This for loop is used for printing number of spaces .

for (j = rows; j >= i; j--) {

System.out.print(" ");

}

//This for loop is used for printing values in reverse pascal triangle .

for (j = 0; j <= i; j++) {

if (j == 0 || i == 0) {

ncr = 1;

}

else {

//This formula calculates the ncr value .

ncr = ncr \* (i - j + 1) / j;

}

System.out.printf("%4d \t", ncr);

}

System.out.println();

}

}

}

**Sample Output 1 –A picture containing background pattern

Description automatically generated**

**Sample Output 2 –**

**A screenshot of a phone

Description automatically generated with low confidence**

**Program 3 –**

**Code –**

import java.util.Scanner; // imported scanner class to take user input

public class PrintStar {

//6X8 array

public static int height = 7;

public static int width = 5;

public static int i,j;

public static void main(String[] args) {

String user;

//integer arrays to store the designs of Alphabets(A-Z) and Numbers(0-9).

int[][] starA = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}};

int[][] starB = {{1, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 0}};

int[][] starC = {{0, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {0, 1, 1, 1, 1, 1}};

int[][] starD = {{1, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 0}};

int[][] starE = {{1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}};

int[][] starF = {{1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}};

int[][] starG = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}};

int[][] starH = {{1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}};

int[][] starI = {{1, 1, 1, 1, 1, 1}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {1, 1, 1, 1, 1, 1}};

int[][] starJ = {{1, 1, 1, 1, 1, 1}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {1, 0, 0, 1, 0, 0}, {0, 1, 1, 0, 0, 0}};

int[][] starK = {{1, 0, 0, 0, 1, 0}, {1, 0, 0, 1, 0, 0}, {1, 0, 1, 0, 0, 0}, {1, 1, 0, 0, 0, 0}, {1, 1, 0, 0, 0, 0}, {1, 0, 1, 0, 0, 0}, {1, 0, 0, 1, 0, 0}, {1, 0, 0, 0, 1, 0}};

int[][] starL = {{1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}};

int[][] starM = {{1, 0, 0, 0, 0, 1}, {1, 1, 0, 0, 1, 1}, {1, 0, 1, 1, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}};

int[][] starN = {{1, 0, 0, 0, 0, 1}, {1, 1, 0, 0, 0, 1}, {1, 0, 1, 0, 0, 1}, {1, 0, 0, 1, 0, 1}, {1, 0, 0, 0, 1, 1}, {0, 0, 0, 0, 0, 0}, {0, 0, 0, 0, 0, 0}, {0, 0, 0, 0, 0, 0}};

int[][] starO = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}};

int[][] starP = {{1, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}};

int[][] starQ = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}, {0, 0, 0, 0, 1, 0}, {0, 0, 0, 0, 0, 1}};

int[][] starR = {{1, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 0}, {1, 1, 0, 0, 0, 0}, {1, 0, 1, 0, 0, 0}, {1, 0, 0, 1, 0, 0}};

int[][] starS = {{0, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {0, 1, 1, 1, 1, 0}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 0}, {0, 0, 0, 0, 0, 0}};

int[][] starT = {{1, 1, 1, 1, 1, 1}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}};

int[][] starU = {{1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}};

int[][] starV = {{1, 0, 0, 0, 1, 0}, {1, 0, 0, 0, 1, 0}, {1, 0, 0, 0, 1, 0}, {1, 0, 0, 0, 1, 0}, {1, 0, 0, 0, 1, 0}, {1, 0, 0, 0, 1, 0}, {0, 1, 0, 1, 0, 0}, {0, 0, 1, 0, 0, 0}};

int[][] starW = {{1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 1, 1, 0, 1}, {1, 1, 0, 0, 1, 1}, {1, 0, 0, 0, 0, 1}};

int[][] starX = {{1, 0, 0, 0, 0, 1}, {0, 1, 0, 0, 1, 0}, {0, 0, 1, 1, 0, 0}, {0, 0, 1, 1, 0, 0}, {0, 1, 0, 0, 1, 0}, {1, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 0}, {0, 0, 0, 0, 0, 0}};

int[][] starY = {{0, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 1, 0}, {0, 1, 0, 1, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 0, 1, 0, 0, 0}};

int[][] starZ = {{1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 1, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 1, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 0, 0}, {0, 0, 0, 0, 0, 0}};

int[][] star0 = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}};

int[][] star1 = {{0, 0, 0, 1, 0, 0}, {0, 0, 1, 1, 0, 0}, {0, 1, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 0, 1, 0, 0}, {1, 1, 1, 1, 1, 1}};

int[][] star2 = {{0, 0, 1, 1, 1, 0}, {0, 1, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 1, 0}, {0, 0, 0, 1, 0, 0}, {0, 0, 1, 0, 0, 0}, {0, 1, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}};

int[][] star3 = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 1, 1, 1, 0}, {0, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}, {0, 0, 0, 0, 0, 0}};

int[][] star4 = {{1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}};

int[][] star5 = {{1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 0, 0}};

int[][] star6 = {{1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 0, 0, 0, 0, 0}, {1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}};

int[][] star7 = {{1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}};

int[][] star8 = {{0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {0, 1, 1, 1, 1, 0}, {0, 0, 0, 0, 0, 0}};

int[][] star9 = {{1, 1, 1, 1, 1, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}, {0, 0, 0, 0, 0, 1}, {0, 0, 0, 0, 0, 1}, {1, 1, 1, 1, 1, 1}};

Scanner sc = new Scanner(System.in);

System.out.println("Please enter A-Z or 0-9");

user = sc.next(); //Taking user input for required Alphabet or number pattern.

user = String.valueOf(user.charAt(0));

//Switch statement

//Calling method(print) using switch case and passing array values.

switch (user) {

case "A" -> print(starA);

case "B" -> print(starB);

case "C" -> print(starC);

case "D" -> print(starD);

case "E" -> print(starE);

case "F" -> print(starF);

case "G" -> print(starG);

case "H" -> print(starH);

case "I" -> print(starI);

case "J" -> print(starJ);

case "K" -> print(starK);

case "L" -> print(starL);

case "M" -> print(starM);

case "N" -> print(starN);

case "O" -> print(starO);

case "P" -> print(starP);

case "Q" -> print(starQ);

case "R" -> print(starR);

case "S" -> print(starS);

case "T" -> print(starT);

case "U" -> print(starU);

case "V" -> print(starV);

case "W" -> print(starW);

case "X" -> print(starX);

case "Y" -> print(starY);

case "Z" -> print(starZ);

case "0" -> print(star0);

case "1" -> print(star1);

case "2" -> print(star2);

case "3" -> print(star3);

case "4" -> print(star4);

case "5" -> print(star5);

case "6" -> print(star6);

case "7" -> print(star7);

case "8" -> print(star8);

case "9" -> print(star9);

default -> System.out.println("Please enter A-Z or 0-9");

}

}

/\*\*

\* This method(print) will print the pattern of Alphabets and numbers.

\* @param star will store the array values of user input.

\*/

public static void print(int[][] star) {

for(i=0;i<=height;i++){ //This for loop is used for number of rows.

for(j=0;j<=width;j++){ //This for loop is used for number of columns.

if( star[i][j]==1) {

//It will print \* if array value of certain index is 1.

System.out.print("\* ");

}

else {

//It will print space if array value of certain index is 0.

System.out.print(" ");

}

}

System.out.println();

}

}

}

**Sample Output 1 –**

**Text

Description automatically generated**

**Sample Output 2 –**

**Text

Description automatically generated**