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**Algorithm:**

**1. Populate data array with random integers**

**between 1 and 9**

**2. Display the contents of the data array in 2D**

**table form**

**3. Determine the total of each row and save**

**each row's total to the total\_rows array**

**4. Display the total of each row by using the**

**total\_rows array**

**5. Determine the total of each column and save**

**each column's total to the total\_cols array**

**6. Display the total of each column in the**

**total\_rows array**

**7. Terminate**

**\*/**

int main (void)

{

**//Local variables created**

int data [ 4 ] [ 8 ] = { 0 } ;

int total\_rows [ 4 ] = { 0 } ;

int total\_cols [ 8 ] = { 0 } ;

int col = 0, row = 0 ;

**//Seed the random function based upon server time at execution**

srandom ( ( unsigned ) time( **NULL** ) ) ;

**//1. Populate data array with random integers**

**//between 1 and 9**

**for** (row = 0 ; row < 4 ; row = row + 1 )

{

**for** (col = 0 ; col < 8 ; col = col +1 )

{

data [ row ] [ col ] = (random( ) % 9) + 1 ;

}

}

**//2. Display the contents of the data array in 2D**

**// table form**

**for** (row = 0 ; row < 4 ; row = row + 1 )

{

printf(**"\n"**) ;

**for** (col = 0 ; col < 8 ; col = col +1 )

{

printf(**" %d "** , data [ row ] [ col ] ) ;

}

}

printf(**"\n\n"**) ; **//Added for spacing of output**

**//3. Determine the total of each row and save**

**// each row's total to the total\_rows array**

**for** (row = 0 ; row < 4 ; row = row + 1 )

{

**for** (col = 0 ; col < 8 ; col = col + 1 )

{

total\_rows [ row ] = total\_rows[ row ] +

data[ row ] [ col ] ;

}

}

**//4. Display the total of each row by using the**

**// total\_rows array**

**for** (row = 0 ; row < 4 ; row = row + 1 )

{

printf(**"\n row %d total: %d"** , row , total\_rows [ row ] ) ;

}

**//5. Determine the total of each column and save**

**// each column's total to the total\_cols array**

**for** (col = 0 ; col < 8 ; col = col + 1 )

{

**for** (row = 0 ; row < 4 ; row = row + 1 )

{

total\_cols [ col ] = total\_cols[ col ] +

data [ row ] [ col ] ;

}

}

printf(**"\n\n"**) ; **//Added for spacing of output**

**//6. Display the total of each column in the**

**// total\_rows array**

**for** (col = 0 ; col < 8 ; col = col + 1 )

{

printf(**"\n col %d total: %d"** , col , total\_cols [ col ] ) ;

}

printf(**"\n\n"**) ; **//Added for spacing of output**

**//7. Terminate**

return 0 ;

}