**Digit Sort Algorithm**

**Step 1:** Start

**Step 2:** Initialize pointer array of unsigned integer type variables to dynamically allocate memory i.e; **arrin, arrout, b1, b2, b3, b4, b5** also initialize unsigned integer type variables i.e; **count1, count2, count3, count4, count5, n, no, count, i, j, k=0.**

**Step 3: TAKE** ‘n’ number of elements from user.

**Step 4: TAKE** ‘n’ number of input elements from user between 0 to 32767 range.

**IF** arrin[i] is greater than MAXD **THEN**,

! INPUT ELEMENT IS OUT OF RANGE.

**EXIT**

**ELSE**

**TAKE** input from user into arrin[i]

BEFORE SORTING ELEMENTS ARE:

**for** i=0, i **less than** ‘n’, **increment** i

**PRINT** arrin[i]

**Step 5:** TO COUNT NUMBER OF DIGITS

**FOR(** i=0, i **less than** ‘n’, **increment** i)

count=0.

no=arrin[i].

DO(no=no **divided by** 10

Count **increment**)

Check (no **not equal to** 0)

**Step 5:** GO TO CORRESPONDING DIGIT BUCKET

**IF** (COUNT=1)

PUT THE ELEMENT INTO b1

b1[count1]=arrin[i]

**FOR**(j=count1, j **is greater than** 0, j **decrement**)

**IF**(b1[j-1] is **less than equal to** b1[j])

**BREAK.**

**ELSE**

Temp=b1[j-1]

b1[j-1]=b1[j]

b1[j]=temp

**Count1 increment**

**ELSE IF** (COUNT=2)

PUT THE ELEMENT INTO b2

b2[count2]=arrin[i]

**FOR**(j=count2, j **is greater than** 0, j **decrement**)

**IF**(b2[j-1] **is less than equal to** b2[j])

**BREAK.**

**ELSE**

Temp=b2[j-1]

b2[j-1]=b2[j]

b2[j]=temp

**Count2** increment

**ELSE IF** (COUNT=3)

PUT THE ELEMENT INTO b3

b3[count3]=arrin[i]

**FOR**(j=count3, j **is greater than** 0, j **decrement**)

**IF**(b3[j-1] **is** **less than equal to** b3[j])

**BREAK.**

**ELSE**

Temp=b3[j-1]

b3[j-1]=b3[j]

b3[j]=temp

**Count3 increment**

**ELSE IF** (COUNT=4)

PUT THE ELEMENT INTO b4

b4[count4]=arrin[i]

**FOR**(j=count4, j **is greater than** 0, j **decrement**)

**IF**(b4[j-1] **is less than equal to** b4[j])

**BREAK.**

**ELSE**

Temp=b4[j-1]

b4[j-1]=b4[j]

b4[j]=temp

**Count4 increment**

**ELSE IF** (COUNT=5)

PUT THE ELEMENT INTO b5

b5[count5]=arrin[i]

**FOR**(j=count5, j **is greater than** 0, j **decrement**)

**IF**(b5[j-1] **is less than equal to** b5[j])

**BREAK.**

**ELSE**

Temp=b5[j-1]

b5[j-1]=b5[j]

b5[j]=temp

**Count5 increment**

**Step 6:** TAKE ALL THE ELEMENTS OF EVERY BUCKET INTO ONE ARRAY.

**FOR**(j=0, j **is less than** count1, j **increment)**

arrout[k **increment**]=b1[j].

**FOR**(j=0, j **is less than** count2, j **increment**)

arrout[k **increment**]=b2[j].

**FOR**(j=0, j **is less than** count3, j **increment**)

arrout[k **increment**]=b3[j].

**FOR**(j=0, j **is less than** count4, j **increment**)

arrout[k **increment**]=b4[j].

**FOR**(j=0, j **is less than** count5, j **increment**)

arrout[k **increment**]=b5[j].

**Step 7:** AFTER SORTING ELEMENTS ARE:

**FOR**(i=0, i **less than** n, i **increment**)

**PRINT** arrout[i]

**Step 8:** STOP