**SSN COLLEGE OF ENGINEERING (Autonomous)**

**Affiliated to Anna University**

**DEPARTMENT OF CSE**

**UCS 1211 PROGRAMMING IN C LABORATORY**

**A2: ARRAY HANDLING IN C**

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**1.)Program name: three digit well-ordered numbers.**

#include<stdio.h>

void main()

{ int a[100],count=0;

for(int i=1; i<=7; i++)

for(int j=i+1; j<=8; j++)

for(int k=j+1; k<=9; k++)

a[count++]=i\*100+j\*10+k;

for(int i=0; i<count; i++)

printf("%d ",a[i]);

printf("\nThe number of well ordered three digit numbers are %d",count);

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ gcc a3\_1.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ ./a.out

123 124 125 126 127 128 129 134 135 136 137 138 139 145 146 147 148 149

156 157 158 159 167 168 169 178 179 189 234 235 236 237 238 239 245 246

247 248 249 256 257 258 259 267 268 269 278 279 289 345 346 347 348 349

356 357 358 359 367 368 369 378 379 389 456 457 458 459 467 468 469 478

479 489 567 568 569 578 579 589 678 679 689 789

The number of well ordered three digit numbers are 84

**2.) Program name: Histogram**

#include<stdio.h>

void main()

{ int a[100],b[10],n;

printf("Enter the number of integers");

scanf("%d",&n);

printf("Enter the array elements");

for(int i=0; i<n; i++)

scanf("%d",&a[i]);

for(int i=0; i<10; i++)

b[i]=0;

for(int i=0; i<n; i++)

b[a[i]]+=1;

int max=b[0];

for(int i=1; i<10; i++)

if(b[i]>max)

max=b[i];

for(int i=max; i>0; i--)

{ for(int j=0; j<9; j++)

{ if(b[j]>=i)

printf("\*");

else

printf(" ");

}

printf("\n");

}

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ gcc a3\_2.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ ./a.out

Enter the number of integers 8

Enter the array elements

3

1

1

0

1

9

6

0

\*

\* \*

\* \* \* \* \*

**3.) Program name: push zeros to the end of the array**

#include<stdio.h>

void push(int a[100],int n)

{ int count =0;

for(int i=0; i<n; i++)

if(a[i]!=0)

a[count++]=a[i];

while(count<n)

a[count++]=0;

}

void main()

{ int n,a[100];

printf("Enter the number of integers");

scanf("%d",&n);

printf("Enter the array elements");

for(int i=0; i<n; i++)

scanf("%d",&a[i]);

push(a,n);

for(int i=0; i<n; i++)

printf("%d ",a[i]);

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ gcc a3\_3.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ ./a.out

Enter the number of integers 6

Enter the array elements

0

98

0

54

0

1

98 54 1 0 0 0

**4.)Program name :Input and display student details.**

#include<stdio.h>

#include<string.h>

void main()

{ char name[20][20];

float marks[20][20],avg,total;

int n;

printf("Enter the number of students");

scanf("%d",&n);

printf("Enter the names and marks of students");

for(int i=0; i<n; i++)

{ scanf("%s",name[i]);

for(int j=0; j<6; j++)

{ scanf("%f",&marks[i][j]);

total+=marks[i][j];

}

marks[i][6]=total/6;

marks[i][7]=0.15\*(marks[i][0]+marks[i][1]+marks[i][2]+marks[i][3])

+0.20\*(marks[i][4]+marks[i][5]);

}

total=0;

for(int i=0; i<n; i++)

total+=marks[i][6];

avg=total/n;

printf("\nThe details of the students are");

for(int i=0; i<n; i++)

{ printf("\n %s",name[i]);

for(int j=0; j<8; j++)

printf(" %f ",marks[i][j]);

printf(" %f",marks[i][7]-avg);

}

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ gcc a3\_4.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ ./a.out

Enter the number of students 3

Enter the names and marks of students

KSHITIJ

100

100

100

100

100

100

KAVIN

100

90

80

70

60

50

SACHETH

90

80

70

60

50

40

The details of the students are

KSHITIJ 100.000000 100.000000 100.000000 100.000000 100.000000

100.000000 240.000000 100.000000 -48.333328

KAVIN 100.000000 90.000000 80.000000 70.000000 60.000000

50.000000 140.000000 73.000000 -75.333328

SACHETH 90.000000 80.000000 70.000000 60.000000 50.000000

40.000000 65.000000 63.000000 -85.333328

**5.) Program name: Rock-paper-scissors:**

#include<stdio.h>

#include<stdlib.h>

void main()

{ char c,u;

int score=0;

int n;

printf("Enter the number of plays");

scanf("%d",&n);

while(n>0)

{ int k=rand()%3+1;

switch(k)

{ case 1:

c='r';

break;

case 2:

c='p';

break;

case 3:

c='s';

break;

default:

break;

}

printf("\nEnter your choice ");

scanf(" %c",&u);

printf("\n%c",c);

if(u==c)

printf("\n Its a draw this time");

else if((u=='r' && c=='s') || (u=='p' && c=='r')||(u=='s' && c=='p'))

{ score+=1;

printf("\n You win");

}

else

{ score--;

printf("\n You lose");

}

n--;

}

}

**Output:**

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ gcc a3\_5.c

cseb80@jtl12-HP-285-Pro-G2-MT:~/Assignment3$ ./a.out

Enter the number of plays 4

Enter your choice p

p

Its a draw this time

Enter your choice r

p

You loose

Enter your choice p

r

you win

Enter your choice s

s

Its a draw this time