To write a C program to simulate a Turing Machine for the language L={ 0n 1n2n | n>=1 } in which n number of 0’s are followed by 2n number of 1’s

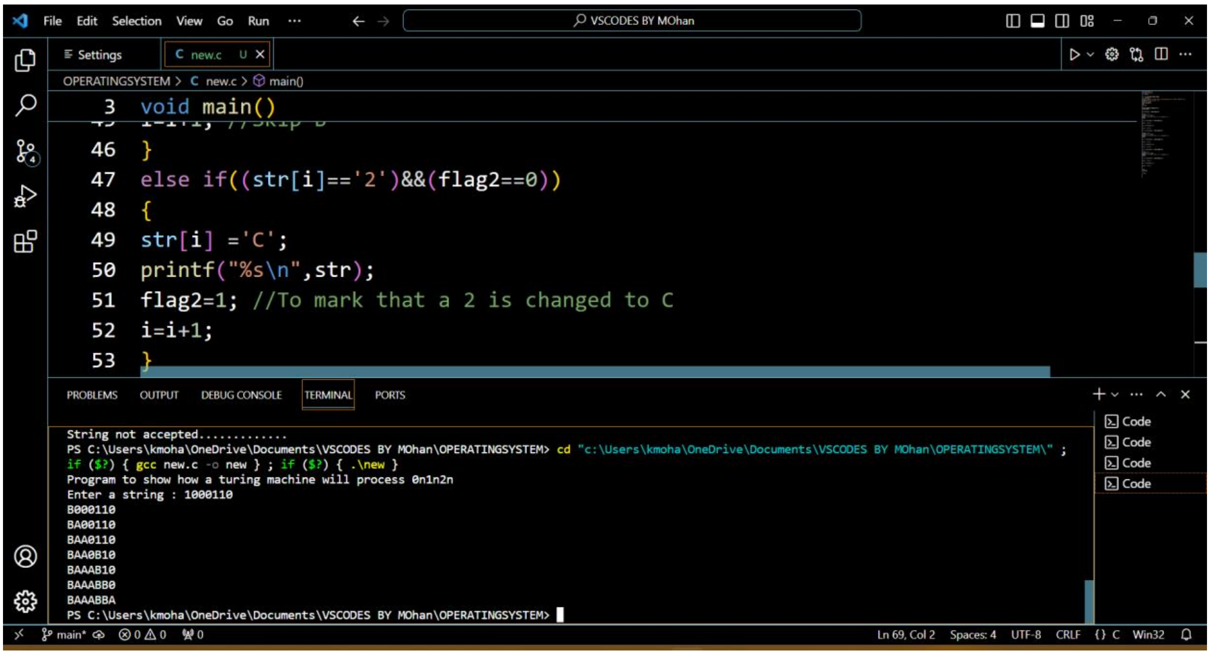
AIM : To write a C program to simulate a Turing Machine for the language L={ 0n 1n2n | n>=1 } in which n number of 0’s are followed by 2n number of 1’s

Program:

```
#include<stdio.h>
#include<string.h>
void main()
{
int i,j,le,flag,flag1,flag2;
char str[20];
printf("Program to show how a turing machine will process 0n1n2n\n");
printf("Enter a string : ");
scanf("%s",str);
le=strlen(str);
j=0;
while(1)
{
flag=0;flag1=0;flag2=0;i=0;
while(i<le)
{
if((str[i]=='0')&&(flag==0))
{
str[i] = 'A';
printf("%s\n",str);
flag=1; //To mark that a 0 is changed to A
i=i+1;
}
else if((str[i]=='0')&&(flag==1))
{
i=i+1; //Skip 0
}
else if(str[i]=='A')
{
i=i+1; //Skip A
}
else if((str[i]=='1')&&(flag1==0))
{
str[i] = 'B';
printf("%s\n",str);
flag1=1; //To mark that a 1 is changed to B
i=i+1;
}
else if((str[i]=='1')&&(flag1==1))
{
i=i+1; //Skip 1
}
else if(str[i]=='B')
{
i=i+1; //Skip B
}
else if((str[i]=='2')&&(flag2==0))
{
str[i] ='C';
printf("%s\n",str);
flag2=1; //To mark that a 2 is changed to C
i=i+1;
}
else if((str[i]=='2')&&(flag2==1))
{
i=i+1; //Skip 2
}
```

```
else if(str[i]=='C')
{
i=i+1; //Skip C
}
}
j=j+1;
if(j==le)
{
 break;
}
}
}}
```

OUTPUT:



File Edit Selection View Go Run ···
VSCODES BY MOhan
Settings
new.c U
OPERATINGSYSTEM > new.c > main()
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Code
Code
Code
Code
main* ⊗ 0 ⚠ 0 0
Ln 69, Col 2 Spaces: 4 UTF-8 CRLF {} C Win32

```
void main()
}
else if((str[i]=='2')&&(flag2==0))
{
str[i] ='C';
printf("%s\n",str);
flag2=1; //To mark that a 2 is changed to C
i=i+1;
}
```

```
String not accepted.............
PS C:\Users\kmoha\OneDrive\Documents\VSCODES BY MOhan\OPERATINGSYSTEM> cd "c:\Users\kmoha\OneDrive\Documents\VSCODES BY MOhan\OPERATINGSYSTEM\" ;
if ($?) { gcc new.c -o new } ; if ($?) { .\new }
Program to show how a turing machine will process 0n1n2n
Enter a string : 1000110
B000110
BA00110
BAA0110
BAA0B10
BAAAB10
BAAABB0
BAAABBA
PS C:\Users\kmoha\OneDrive\Documents\VSCODES BY MOhan\OPERATINGSYSTEM>
```

}**RESULT:** Output is successfully obtained.