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Experiment no.8 Non Restoring Division Algorithm

Input:

```
#include<
stdio.h>
#include<
conio.h>
int a[5]={0,0,0,0,0},q[4],b[5],b2c[5];
comp()
{
in
t
i=
4;
d
o
{
b2c[i
]=b[i
];i--;
}while(b[i+1]
!=1);
while(i>=0)
{
b2c[i]=(b[i
+1)%2; i--;
}
printf("\n\tB's
complement:");
for(i=0;i< 5;i++)
printf("%d",b2c[i]);
printf("\n");
}
nonresdiv()
{
shif
t
eft();
if(a[0
]==0
)
a_minus_
b();else
a_plus_b(
```

```

);
q[3]=(a[0]+1)%2;
}
shiftleft()
{
int i;
for(i=0;i<
4;i++)
a[i]=a[i+
1];
a[4]=q[0];
for(i=0;i<
3;i++)
q[i]=q[i+
1];
}
a_minus_b()
{
int
i,carry=0,sum
=0;
for(i=4;i>=0;i
--)
{
sum=(a[i]+b2c[i]+
carry);
a[i]=sum%2;
carry=sum/2;
}
}
a_plus_b()
{
int
i,carry=0,sum
=0;
for(i=4;i>=0;i
--)
{
sum=(a[i]+b[i]+car
ry); a[i]=sum%2;
carry=sum/2;
}
}
void main()
{
int i,j,k;
clrscr();
printf("Enter dividend in binary
form\t: ");for(i=0;i< 4;i++)
scanf("%d",&q[i]);
printf("Enter divisor in binary
form\t: ");for(i=0;i< 5;i++)

```

```

scanf("%d",&b[i])
; comp();
printf("\n\t[A]\t[M]
\n"); for(i=0;i<
4;i++)
{
nonresdiv()
;
printf("\t");
for(j=0;j<
5;j++)
printf("%d"
,a[j]);
printf("\t");
for(k=0;k<
4;k++)
printf("%d"
,q[k]);
printf("\n")
;
}
if(a[0
]==1
)
a_plus_b();prin
tf("\t");
for(j=0;j<
5;j++)
printf("%d",a[
j]);
printf("\t");
for(k=0;k<
4;k++)
printf("%d",q[
k]);
printf("\n");
printf("\n\tThe
Quotient Is\t: ");
for(k=0;k< 4;k++)
printf("%d",q[k]);
printf("\n\tThe
Remainder Is\t: ");
for(j=0;j< 5;j++)
printf("%d",a
[j]); getch();
}

```

Type your text

Output:

```
apsit@apsit-HP-280-G3-MT:~/Aryan 129$ ./Expt8
```

```
Enter dividend in binary form : 2
```

```
1
```

```
1
```

```
0
```

```
Enter divisor in binary form : 4
```

```
0
```

```
0
```

```
1
```

```
1
```

```
B's complement:11101
```

[A]	[M]
11111	1100
00010	1001
00010	0011
00001	0111
00001	0111

```
The Quotient Is : 0111
```

```
The Remainder Is : 00001apsit@apsit-HP-280-G3-MT:~/Aryan 129$
```