SL- V Class:BE IT
Exp 2:

Aim: Design a distributed application using RPC for remote computation where client submits an integer value to the server and server calculates factorial and returns the result to the client program.

Steps:

Create the IDL

Open terminal

```
sudo apt-get update
```

```
sudo apt-get install rpcbind
```

```
mkdir exp2
```

```
cd exp2
```

```
gedit fact.x
```

add following code in it

```
struct intpair {
int a;
};
program FACT_PROG {
version FACT_VERS {
int FACT(intpair) = 1;
} = 1;
} = 0x23451111;
```

save and exit the file

```
rpcgen -a -C fact.x
```

```
gedit Makefile.fact
```

find the following line in the file
CFLAGS += -g
and change it to:
CFLAGS += **-g -DRPC_SVC_FG**

find the following line in the same file
RPCGENFLAGS =
and change it to:
RPCGENFLAGS = -C

save and exit the file

gedit fact_client.c

we will make some changes in this file (changes are highlighted)

```
#include "fact.h"

void
fact_prog_1(char *host,int a)
{
        CLIENT *clnt;
        int  *result_1;
        intpair  fact_1_arg;

#ifndef DEBUG
        clnt = clnt_create (host, FACT_PROG, FACT_VERS, "udp");
        if (clnt == NULL) {
                clnt_pcreateerror (host);
                exit (1);
        }
#endif  /* DEBUG */


        fact_1_arg.a=a;


        result_1 = fact_1(&fact_1_arg, clnt);
        if (result_1 == (int *) NULL) {
                clnt_perror (clnt, "call failed");
        }

        else
        {
                printf("Factorial=%d",*result_1);
        }

#ifndef DEBUG
        clnt_destroy (clnt);
#endif   /* DEBUG */
}


int
main (int argc, char *argv[])
{
        char *host;
      int a,ch;
        if (argc < 2) {
                printf ("usage: %s server_host\n", argv[0]);
                exit (1);
        }
        host = argv[1];
```

```
        do
        {
                system("clear");
                printf("\nEnter a no:: ");
                scanf("%d",&a);
                fact_prog_1 (host,a);

                printf("\nTry again : (1/0) :: ");
                scanf("%d",&ch);

        } while(ch==1);


  exit (0);

}
```

save and exit the file

```
gedit fact_server.c
```

we will make some changes in this file (changes are highlighted)

```
#include "fact.h"

int *
fact_1_svc(intpair *argp, struct svc_req *rqstp)
{
        static int  result,n,fact;
        int i;

        n=argp->a;

        // factorial logic

        fact = 1;
        printf("\n Received : n= %d \n",n);
        for (i=n;i>0;i--)
         {
             fact=fact * i;
         }

        result=fact;

        return &result;
}
```

save and exit the file

```
# compile
make -f Makefile.fact

# In one terminal, run:
sudo ./fact_server

# In another terminal, run:
./fact_client localhost
```

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