# Task 1

```c
#include<stdlib.h>
#include<unistd.h>
#include<pthread.h>
#include<stdio.h>
void *printthread (void * x)
{
    int a = (int) x;
    printf("Thread %d\n",a);
    sleep(1);
    printf("Thread %d: Return 0\n",a);
}
int main()
{
    pthread_t Threads[3];
    for(int i = 0; i < 3; i++){
        pthread_create(&Threads[i],NULL,&printthread, (void *)(i+1));
    }
    for(int i = 0; i < 3; i++){
        pthread_join(Threads[i],NULL);
    }
    return 0;
}
```

```
ammansoomro@Amman-PC:~/Visual_Studio/Lab 6$ ./Lab6Task1
Thread 1
Thread 3
Thread 2
Thread 1: Return 0
Thread 2: Return 0
Thread 3: Return 0
```

# Task 2

```c
#include<stdlib.h>
#include<unistd.h>
#include<pthread.h>
#include<stdio.h>
void *MultiplyThread (void * x)
{
    int a = (int) x;
```

```c
    int i;
    for(i=1; i<=1000; i++)
    {
        printf("%d x %d = %d\n",a,i,(a*i));
    }
    sleep(1);
    printf("Thread %d ended.\n",a);
}

int main()
{
    pthread_t Threads[10];
    for(int i = 5; i <= 8; i++){
        pthread_create(&Threads[i],NULL,&MultiplyThread, (void *)(i));
    }
    for(int i = 5; i <=8; i++){
        pthread_join(Threads[i],NULL);
    }
    return 0;
}
```

```
8 x 968 = 7744
8 x 969 = 7752
8 x 970 = 7760
8 x 971 = 7768
8 x 972 = 7776
8 x 973 = 7784
8 x 974 = 7792
8 x 975 = 7800
8 x 976 = 7808
8 x 977 = 7816
8 x 978 = 7824
8 x 979 = 7832
8 x 980 = 7840
8 x 981 = 7848
8 x 982 = 7856
8 x 983 = 7864
8 x 984 = 7872
8 x 985 = 7880
8 x 986 = 7888
8 x 987 = 7896
8 x 988 = 7904
8 x 989 = 7912
8 x 990 = 7920
8 x 991 = 7928
8 x 992 = 7936
8 x 993 = 7944
8 x 994 = 7952
8 x 995 = 7960
8 x 996 = 7968
8 x 997 = 7976
8 x 998 = 7984
8 x 999 = 7992
8 x 1000 = 8000
Thread 7 ended.
Thread 5 ended.
Thread 6 ended.
Thread 8 ended.
ammansoomro@Amman-PC:~/Visual_Studio/Lab 6$
```

## Task 3:

```c
#include<stdlib.h>
#include<unistd.h>
#include<pthread.h>
#include<stdio.h>
void *Print (void * x)
{
    int a = (int) x;
    printf("Hello from thread %u - I was created in iteration %d \n",
    pthread_self(), a);
}
```

```c
int main()
{
    int n;
    int thread_id;
    printf("How many threads are there to be created?\n");
    scanf("%d", &n);
    pthread_t thread;
    thread_id = pthread_self();
    for(int i = 1; i <= n; i++){
        pthread_create(&thread,NULL,&Print, (void *)(i));
        printf("I am thread %u. Created new thread (%u) in iteration
%d\n",thread_id,thread,i);
        if((i % 5) == 0)
        {
            sleep(1);
        }
    }
    pthread_join(thread,NULL);
    //pthread_exit(NULL);
    return 0;
}
```

```
ammansoomro@Amman-PC:~/Visual_Studio/Lab 6$ ./Lab6Task3
How many threads are there to be created?
50
I am thread 779802432. Created new thread (779798272) in iteration 1
Hello from thread 779798272 - I was created in iteration 1
I am thread 779802432. Created new thread (771405568) in iteration 2
Hello from thread 771405568 - I was created in iteration 2
I am thread 779802432. Created new thread (763012864) in iteration 3
I am thread 779802432. Created new thread (754620160) in iteration 4
Hello from thread 754620160 - I was created in iteration 4
I am thread 779802432. Created new thread (746227456) in iteration 5
Hello from thread 746227456 - I was created in iteration 5
Hello from thread 763012864 - I was created in iteration 3
I am thread 779802432. Created new thread (737834752) in iteration 6
Hello from thread 737834752 - I was created in iteration 6
I am thread 779802432. Created new thread (729442048) in iteration 7
Hello from thread 729442048 - I was created in iteration 7
I am thread 779802432. Created new thread (721049344) in iteration 8
I am thread 779802432. Created new thread (712656640) in iteration 9
Hello from thread 712656640 - I was created in iteration 9
I am thread 779802432. Created new thread (704263936) in iteration 10
Hello from thread 721049344 - I was created in iteration 8
Hello from thread 704263936 - I was created in iteration 10
I am thread 779802432. Created new thread (695871232) in iteration 11
Hello from thread 695871232 - I was created in iteration 11
I am thread 779802432. Created new thread (687478528) in iteration 12
Hello from thread 687478528 - I was created in iteration 12
I am thread 779802432. Created new thread (679085824) in iteration 13
Hello from thread 679085824 - I was created in iteration 13
I am thread 779802432. Created new thread (670693120) in iteration 14
Hello from thread 670693120 - I was created in iteration 14
I am thread 779802432. Created new thread (662300416) in iteration 15
Hello from thread 662300416 - I was created in iteration 15
I am thread 779802432. Created new thread (653907712) in iteration 16
Hello from thread 653907712 - I was created in iteration 16
I am thread 779802432. Created new thread (645515008) in iteration 17
Hello from thread 645515008 - I was created in iteration 17
I am thread 779802432. Created new thread (637122304) in iteration 18
```

## Task 4:

```c
#include<stdlib.h>
#include<unistd.h>
#include<pthread.h>
#include<stdio.h>
int sum=0;
void *addthreads (void * x)
{
    int a = (int) x;
    sum = sum + a;
}
int main()
```

```
{
    pthread_t Threads[10];
    int arr[]={10,20,30,40,50,60,70,80,90,100};
    for(int i = 0; i < 10; i++){
        pthread_create(&Threads[i],NULL,&addthreads, (void *)arr[(i)]);
    }
    for(int i = 0; i < 10; i++){
        pthread_join(Threads[i],NULL);
    }
    printf("Total Sum of 10 Threads: %d\n",sum);
    return 0;
}
```

```
ammansoomro@Amman-PC:~/Visual_Studio$ cd "Lab 6"
ammansoomro@Amman-PC:~/Visual_Studio/Lab 6$ ./Lab6Task4
Total Sum of 10 Threads: 550
ammansoomro@Amman-PC:~/Visual_Studio/Lab 6$
```

# Task 5:

```c
#include <stdlib.h>

#include <pthread.h>

#include <time.h>


void *registration(void *x)

{



   printf("Participant Number:%d-Congrats you have been registered!\n",
(int *)x);


}




void *announcements(void *x)

{



   printf("Participant Number:%d-The starts at 9:00 am!\n", (int *)x);


}




void *sponsors(void *x)
```

```c
{

    printf("Participant Number:%d-Thankyou for sponsoring!\n", (int
*)x);

}


void *queries(void *x)

{


    printf("Participant Number:%d-What are your Queries?\n", (int *)x);

}



void main()

{



    pthread_t thread[4];

    int i, Number;



    srand(time(NULL));
```

```c
    for (i = 0; i < 100; i++)

    {



        Number = rand() % 4 + 1;



        if (Number == 1)


        {



            pthread_create(&thread[0], NULL, registration, (void *)i);


        }

        else if (Number == 2)


        {



            pthread_create(&thread[1], NULL, announcements, (void *)i);


        }

        else if (Number == 3)


        {



            pthread_create(&thread[2], NULL, sponsors, (void *)i);
```

```c
        }

    else if (Number == 4)

        {


            pthread_create(&thread[3], NULL, queries, (void *)i);

        }

    }

    pthread_join(thread[0], NULL);

    pthread_join(thread[1], NULL);

    pthread_join(thread[2], NULL);

    pthread_join(thread[3], NULL);

}
```

```
Participant Number:65-What are your Queries?
Participant Number:66-What are your Queries?
Participant Number:67-Congrats you have been registered!
Participant Number:68-Congrats you have been registered!
Participant Number:69-Thankyou for sponsoring!
Participant Number:70-Thankyou for sponsoring!
Participant Number:71-The starts at 9:00 am!
Participant Number:72-Congrats you have been registered!
Participant Number:73-The starts at 9:00 am!
Participant Number:74-Thankyou for sponsoring!
Participant Number:75-Thankyou for sponsoring!
Participant Number:76-Thankyou for sponsoring!
Participant Number:77-Thankyou for sponsoring!
Participant Number:78-What are your Queries?
Participant Number:79-The starts at 9:00 am!
Participant Number:80-Congrats you have been registered!
Participant Number:81-What are your Queries?
Participant Number:82-What are your Queries?
Participant Number:83-The starts at 9:00 am!
Participant Number:35-What are your Queries?
Participant Number:84-The starts at 9:00 am!
Participant Number:85-What are your Queries?
Participant Number:86-What are your Queries?
Participant Number:87-What are your Queries?
Participant Number:88-What are your Queries?
Participant Number:89-What are your Queries?
Participant Number:90-What are your Queries?
Participant Number:91-Congrats you have been registered!
Participant Number:92-Congrats you have been registered!
Participant Number:93-Thankyou for sponsoring!
Participant Number:94-What are your Queries?
Participant Number:95-The starts at 9:00 am!
Participant Number:96-The starts at 9:00 am!
Participant Number:97-Thankyou for sponsoring!
Participant Number:98-The starts at 9:00 am!
Participant Number:99-The starts at 9:00 am!
Participant Number:51-Thankyou for sponsoring!
ammansoomro@Amman-PC:~/Visual_Studio/Lab 6$
```