2024/05/09
Thursday

#Stack Program

```
#include<stdio.h>
#define N 7
void push(int);
void pop();
void display();
void peak();
int a[N], top=-1;
void push(int data)
{
    if(top==N-1)
    {
      printf("Stack is overflow\n");
    }
    else
    {
      top++;
      a[top]=data;
    }
}
void pop()
{
  if(top==-1)
  {
    printf("Stack is underflow\n");
  }
  else
  {
    printf("popped element is: %d", a[top]);
    top--;
  }
}
void display()
{
```

```
int i;
if(top==-1)
{
  printf("Stack is underflow\n");
}
else
{
  for(i=top;i>=0;i--)
  {
    printf("%d\n",a[i]);
  }
}
void peak()
{
  int i;
  if(top==-1)
  {
    printf("the stack is underflow\n");
  }
  else
  {
    printf("the peak element is %d",a[top]);
  }
}
void main()
{
  push(1);
  push(2);
  push(3);
  push(4);
  push(2);
  push(3);
  peak(4);
  display();
```

Output:

Stack is overflow

4
3
2
1
3
2
1

The peak element is 4

Queue program

```
#include<stdio.h>
#define N 5
  int rear=-1;
  Front=-1;
  int queue[N];
  void enque();
  void deque();
  void display();
  void enque()
  {
     int element;
     printf("Enter the enque element\n");
     scanf("%d",&element);
     if(rear==N-1)
     {
        printf(" queue is full\n");
     }
     else if(Front==-1&&rear==-1)
     {
        front=rear=0;
        queue[rear]=element;
     }
   else
     { rear++;
        queue[rear]=element;
     }
  }
  void deque()
  {
    if(Front==-1 &&rear==-1)
    { printf("queue is empty\n");
```

```
else if(front == rear)
{ front = rear = -1;
}
else
{ printf("deque element is %d", queue[front]);
}
}
void display()
{
int i;
if(front == -1 && rear == -1)
{
printf("queue is empty\n");
}
else
{
for(i = front; i <= rear; i++)
{
printf("%d\n", queue[i]);
}
}
}
void main()
{
enque();
enque();
enque();
enque();
enque();
enque();
display();
deque();
display();
}
```

Output.

```
enter the enque elemen
1
enter the enque elemen
1
enter the enque elemen
5
enter the enque elemen.
7
enter the enque elemen
8
enter the enque element.
9

que is full
1
1
5
7
8
deque elemen is 1
1
5
7
8
```

Sen
9/5/24