Assignment 6

Q1)

1. Code:

#include <stdio.h>

int front=-1 ,rear=-1;

#define maxsize 10

void enqueue(int queue[maxsize],int value);

int dequeue(int queue[maxsize]);

int peek(int queue[maxsize]);

void traverse(int queue[maxsize]);

int main()

{

int queue[maxsize];

int value;

int choice;

int c,d;

char ch='y';

do{

printf("\nMain Menu");

printf("\n1.Enqueue");

printf("\n2.Dequeue");

printf("\n3.Peek");

printf("\n4.Traverse");

printf("\nEnter your choice");

scanf("%d",&choice);

switch(choice)

{

case 1:printf("enter the value to be entered");

scanf("%d",&value);

enqueue(queue,value);

break;

case 2:d=dequeue(queue);

printf("\nthe element deleted from the queue is %d",d);

break;

case 3:c=peek(queue);

printf("\nthe current element entered in the stack is %d",d);

break;

case 4:traverse(queue);

break;

default:printf("\nInvalid Entry");

}

printf("\ndo you want to continue");

scanf("%s",&ch);

}while(ch=='y' || ch=='Y');

return 0;

}

void enqueue(int queue[maxsize],int value)

{

if(rear==maxsize-1)

{

printf("\nthe queue is overflowing");

}

else{

if(front==-1)

{

front=0;

}

rear=rear+1;

queue[rear]=value;

}

}

int dequeue(int queue[maxsize])

{

if(front == rear+1)

{

printf("\nthe queue is underflow");

return '\0';

}

else

{

int temp;

temp=queue[front];

front++;

return temp;

}

}

int peek(int queue[maxsize])

{

if(front==rear+1)

{

printf("\nthe queue is underflow");

return '\0';

}

else

{

return queue[front];

}

}

void traverse(int queue[maxsize])

{

if(front==rear+1)

{

printf("\nthe queue is underflow");

}

else

{

printf("\nthe elements present in the queue are:");

printf("\n");

int i;

for(int i=front;i<=rear;i++)

{

printf("%d ",queue[i]);

}

printf("\n");

}

}

Output:

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered5

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered

4

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered6

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered7

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered2

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered8

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered8

the queue is overflowing

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice4

the elements present in the queue are:

5 3 4 3 6 7 2 3 3 8

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 5

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 4

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 6

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 7

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 2

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 8

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the queue is underflow

the element deleted from the queue is 0

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice4

the queue is underflow

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered6

the queue is overflowing

do you want to continuen

**...Program finished with exit code 0**

**Press ENTER to exit console.**

1. Code:

#include <stdio.h>

int front=-1 ,rear=-1;

#define maxsize 10

void enqueue(int queue[maxsize],int value);

int dequeue(int queue[maxsize]);

int peek(int queue[maxsize]);

void traverse(int queue[maxsize]);

int main()

{

int queue[maxsize];

int value;

int choice;

int c,d;

char ch='y';

do{

printf("\nMain Menu");

printf("\n1.Enqueue");

printf("\n2.Dequeue");

printf("\n3.Peek");

printf("\n4.Traverse");

printf("\nEnter your choice");

scanf("%d",&choice);

switch(choice)

{

case 1:printf("enter the value to be entered");

scanf("%d",&value);

enqueue(queue,value);

break;

case 2:d=dequeue(queue);

printf("\nthe element deleted from the queue is %d",d);

break;

case 3:c=peek(queue);

printf("\nthe current element entered in the stack is %d",d);

break;

case 4:traverse(queue);

break;

default:printf("\nInvalid Entry");

}

printf("\ndo you want to continue");

scanf("%s",&ch);

}while(ch=='y' || ch=='Y');

return 0;

}

void enqueue(int queue[maxsize],int value)

{

if(rear==maxsize-1)

{

printf("\nthe queue is overflowing");

}

else{

if(front==-1)

{

front=0;

}

rear=rear+1;

queue[rear]=value;

}

}

int dequeue(int queue[maxsize])

{

if(front==rear+1)

{

printf("\nthe queue is underflow");

return '\0';

}

else

{

int temp;

temp=queue[front];

int i;

for(i=0;i<rear;i++)

{

queue[i]=queue[i+1];

}

rear--;

return temp;

}

}

int peek(int queue[maxsize])

{

if(front==rear+1)

{

printf("\nthe queue is underflow");

return '\0';

}

else

{

return queue[front];

}

}

void traverse(int queue[maxsize])

{

if(front==rear+1)

{

printf("\nthe queue is underflow");

}

else

{

printf("\nthe elements present in the queue are:");

printf("\n");

int i;

for(int i=front;i<=rear;i++)

{

printf("%d ",queue[i]);

}

printf("\n");

}

}

Output:

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered2

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered4

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered5

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered6

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered8

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered7

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered1

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered9

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered1

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered2

the queue is overflowing

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice4

the elements present in the queue are:

3 2 4 5 6 8 7 1 9 1

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 2

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 4

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 5

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 6

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 8

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 7

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 1

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 9

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the element deleted from the queue is 1

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice2

the queue is underflow

the element deleted from the queue is 0

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice4

the queue is underflow

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice1

enter the value to be entered3

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

3.Peek

4.Traverse

Enter your choice4

the elements present in the queue are:

3

do you want to continuen

**...Program finished with exit code 0**

**Press ENTER to exit console.**

Q2)

Code:

#include <stdio.h>

int front=-1 ,rear=-1;

#define maxsize 5

void enqueue(int cqueue[maxsize],int value);

int dequeue(int cqueue[maxsize]);

void traverse(int cqueue[maxsize]);

int main()

{

int cqueue[maxsize];

int value;

int choice;

int d;

char ch='y';

do{

printf("\nMain Menu");

printf("\n1.Enqueue");

printf("\n2.Dequeue");

//printf("\n3.Peek");

//printf("\n4.Traverse");

printf("\nEnter your choice");

scanf("%d",&choice);

switch(choice)

{

case 1:printf("enter the value to be entered");

scanf("%d",&value);

enqueue(cqueue,value);

traverse(cqueue);

break;

case 2:d=dequeue(cqueue);

printf("\nthe element deleted from the circular queue is %d",d);

traverse(cqueue);

break;

default:printf("\nInvalid Entry");

}

printf("\ndo you want to continue");

scanf("%s",&ch);

}while(ch=='y' || ch=='Y');

return 0;

}

void enqueue(int cqueue[maxsize],int value)

{

if((rear==maxsize-1 && front==0)||(front==rear+1))

{

printf("\nthe circular queue is overflowing");

}

else

{

if(front==-1)

{

front=0;

rear=0;

}

else if(rear==maxsize-1)

{

rear=0;

}

else

{

rear=rear+1;

}

cqueue[rear]=value;

}

}

int dequeue(int cqueue[maxsize])

{

if(front==-1 && rear==-1)

{

printf("\nthe circular queue is underflow");

return 0;

}

else

{

int temp;

if(front == rear)

{

temp=cqueue[front];

front =rear=-1;

}

else if(front==maxsize-1)

{

temp=cqueue[front];

front=0;

}

else

{

temp=cqueue[front];

front++;

}

return temp;

}

}

void traverse(int cqueue[maxsize])

{

if(front==-1 && rear==-1)

{

printf("\nthe circular queue is underflow");

}

else

{

printf("\nthe elements present in the circular queue are:");

printf("\n");

int i;

if(front<=rear)

{

for(int i=front;i<=rear;i++)

{

printf("%d ",cqueue[i]);

}

printf("\n");

}

else

{

for(int i=front;i<=maxsize-1;i++)

{

printf("%d ",cqueue[i]);

}

for(int i=0;i<=rear;i++)

{

printf("%d ",cqueue[i]);

}

printf("\n");

}

}

}

Output:

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered45

the elements present in the circular queue are:

45

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered34

the elements present in the circular queue are:

45 34

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered94

the elements present in the circular queue are:

45 34 94

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice63

Invalid Entry

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered63

the elements present in the circular queue are:

45 34 94 63

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered72

the elements present in the circular queue are:

45 34 94 63 72

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered28

the circular queue is overflowing

the elements present in the circular queue are:

45 34 94 63 72

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice2

the element deleted from the circular queue is 45

the elements present in the circular queue are:

34 94 63 72

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice2

the element deleted from the circular queue is 34

the elements present in the circular queue are:

94 63 72

do you want to continuey

Main Menu

1.Enqueue

2.Dequeue

Enter your choice1

enter the value to be entered45

the elements present in the circular queue are:

94 63 72 45

do you want to continuen

**...Program finished with exit code 0**

**Press ENTER to exit console.**

Q3)

Code:

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#define SIZE 50

int top = -1, front = 0;

int queue[SIZE];

void push(char);

void pop();

void main()

{

int i, choice;

char s[SIZE], b;

while (1)

{

printf("1-Enter the string\n2-Exit\n");

printf("enter your choice\n");

scanf("%d", &choice);

switch (choice)

{

case 1:

printf("Enter the String\n");

scanf("%s", s);

for (i = 0; s[i] != '\0'; i++)

{

b = s[i];

push(b);

}

for (i = 0; i < (strlen(s) / 2); i++)

{

if (queue[top] == queue[front])

{

pop();

front++;

}

else

{

printf("%s is not a palindrome\n", s);

break;

}

}

if ((strlen(s) / 2) == front)

printf("%s is palindrome\n", s);

front = 0;

top = -1;

break;

case 2:

exit(0);

default:

printf("enter correct choice\n");

}

}

}

void push(char a)

{

top++;

queue[top] = a;

}

void pop()

{

top--;

}

Output:

1-Enter the string

2-Exit

enter your choice

1

Enter the String

dsa

dsa is not a palindrome

1-Enter the string

2-Exit

enter your choice

kanak

Enter the String

kanak is palindrome

1-Enter the string

2-Exit

enter your choice

2

**...Program finished with exit code 0**

**Press ENTER to exit console.**