**LOOPING**

**Loop:**

1.Initialze variables

2.Condition check

3.Statement to be executed (Statements are optional in rare cases)

4.Counter

**Types of Looping Statements:**

1.do while

2. while

3.for

These are divided into two categories. They are:

1.Entry Controlled

2.Exit Controlled

**1.do while:**

**Syntax:** do

{

}

While(cond);

**EX:**

#include<stdio.h>

int main()

{

char taste='g';

int emptyPlate=10;

int sFull=0;

do

{

printf("\nHave a bite\n");

emptyPlate--;

printf("\n Stomach is full (1/0):");

sFull=scanf("%d",&sFull);

printf("\n How was the food(g/b):\n");

scanf(" ");

taste=getchar();

printf("\n value of emptyPlate: %d\n",emptyPlate);

}while((taste=='g') && (sFull==0) || (emptyPlate>=0));

printf("\n Program ended\n");

return 0;

}

**Why there is a semicolon at the end of do while?**

**2.while:**

**Syntax:** while(cond)

{

}

**EX:** scanf is not doing properly

#include<stdio.h>

2 #define SUCCESS 0

3 #define FAILURE -1

4 #define True 1

5 #define False 0

6 int displayMenu();

7

8

9 int main()

10 { int ch;

11 int flag = 0;

12 while(1)

13 {

14 flag=0;

15 ch = displayMenu();

16

17 switch(ch) //switch(ch = displayMenu()

18 {

19 case 1:

20 printf("\nAddition function\n");

21 break;

22 case 2:

23 printf("\nSub function\n");

24 break;

25 case 3:

26 printf("\nMul function\n");

27 break;

28 case 4:

29 printf("\nDivision function\n");

30 break;

31 case 5:

32 printf("\nExit function\n");

33 //exit(SUCCESS);

34 flag = 1;

35 break;

36 default:

37 printf("\nEnter the correct choice\n");

38

39

40 }

41 if(flag == 1)

42 break;

43 }

44

45

46 printf("\nProgram Ended\n\n");

47 return SUCCESS;

48 }

**int displayMenu()**

**51 {**

**52 int choice;**

**53 printf("\n Press");**

**54 printf("\n1. Addition");**

**55 printf("\n2. Sub");**

**56 printf("\n3. Mul");**

**57 printf("\n4. Division");**

**58 printf("\n5. Exit");**

**59 printf("\n Enter the choice:");**

**60 scanf("%d", &choice);**

**61**

**62 return choice;**

**63 }**

**EX:**

**#include<stdio.h>**

**2 #define SUCCESS 0**

**3 #define FAILURE -1**

**4 #define True 1**

**5 #define False 0**

**6 int displayMenu();**

**7**

**8**

**9 int main()**

**10 { int ch;**

**11 int flag = 0;**

**12 int A;**

**13 int B;**

**14 while(1)**

**15 {**

**16 flag=0;**

**17 ch = displayMenu();**

**18 if(ch == 5)**

**19 break;**

**20 printf("\nEnter the values:");**

**21 scanf("%d%d",&A,&B);**

**22**

**23 switch(ch) //switch(ch = displayMenu()**

**24 {**

**25 case 1:**

**26 printf("\nAddition function\n");**

**27 printf("\nA + B = %d\n",A+B);**

**28 break;**

**29 case 2:**

**30 printf("\nSub function\n");**

**31 printf("\nA - B = %d\n",A-B);**

**32 break;**

**33 case 3:**

**34 printf("\nMul function\n");**

**35 printf("\nA \* B = %d\n",A\*B);**

**36 break;**

**37 case 4:**

**38 printf("\nDivision function\n");**

**39 printf("\nA / B = %d\n",A/B);**

**40 break;**

**41 case 5:**

**42 printf("\nExit function\n");**

**43 //exit(SUCCESS);**

**44 flag = 1;**

**45 break;**

**46 default:**

**47 printf("\nEnter the correct choice\n");**

**}**

**51 if(flag == 1)**

**52 break;**

**53 }**

**54**

**55**

**56 printf("\nProgram Ended\n\n");**

**57 return SUCCESS;**

**58 }**

**59**

**60 int displayMenu()**

**61 {**

**62 int choice;**

**63 printf("\n Press");**

**64 printf("\n1. Addition");**

**65 printf("\n2. Sub");**

**66 printf("\n3. Mul");**

**67 printf("\n4. Division");**

**68 printf("\n5. Exit");**

**69 printf("\n Enter the choice:");**

**70 scanf("%d", &choice);**

**71**

**return choice;**

**}**

**FOR LOOP:**

**Syntax:**

for(intialisation; condition; counter)

{

statemsnts

}

We can intialise more than one value in the for loop as well as the more than one increment and decrement values.

We can also write in this way.

i=0;j=0;

for(;i>j;)

{

i++;

j--

}

We can also remove the condition also.

**EX:**

**#include<stdio.h>**

**int main()**

**{**

**int i,j;**

**for(i=0,j=2;i<10&&j<11;i++,j+=2)**

**{**

**printf("\ni=%d\tj=%d",i,j);**

**}**

**}**

**CONVERTING THE FOR LOOP INTO EXIT CONTROL LOOP:**

**#include<stdio.h>**

**int main()**

**{**

**for(int i=0;;)**

**{**

**printf("%d\n",i);**

**i++;**

**if(i>5)**

**{**

**break;**

**}**

**}**

**return 0;**

**}**

**/\***

**WHILE LOOP:**

**int itr=10;**

**while(itr<10)**

**{**

**printf("hello");**

**itr++;**

**}**

**DO WHILE:**

**do{**

**int itr=10;**

**printf("hello");**

**itr++;**

**}while(itr>5);**

**\*/**

**GOTO :**

**#include<stdio.h>**

**int main()**

**{**

**int itr=1;**

**LoopLabel:**

**printf("\nitr=%d",itr);**

**itr++;**

**if(itr>5)**

**goto ExitLable;**

**else**

**goto LoopLabel;**

**ExitLable:**

**printf("\n\n");**

**return 0;**

**}**