Name: VENNELA G

Reg. No : 20BDS0146

Course: Advanced C programming

Slot : L47+48

Lab Assessment: 2

1. **Write a C program to get a set of values from the student such as Student Name (String), course registration (Yes/No). If Yes, ask the user to enter the number of subjects. Based on the number of subject allocate memory for storing the subject name along with its credits. After entering the input values, compute and display the total credits of the registered subjects. (Use Dynamic memory allocation)**

CODE:

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
int sum=0;

void fun(int N)
{int credits;
char *subject=(char *)malloc(N*(sizeof(char)));
for(int i=0;i<N;i++)
{scanf("%s",&subject[i]);
scanf("%d",&credits);
sum+=credits;
}
```

```
}


int main()
{char name[50];int N;
char course_reg[10];

scanf("%s",name);
scanf("%s",course_reg);
if(strcmp(course_reg,"Yes")==0)
{scanf("%d",&N);
fun(N);
printf("%d",sum);
}}
```

OUTPUT:

main.c 20BDS0146.c

```c
#include<stdlib.h>
#include<string.h>
int sum=0;

void fun(int N)
{int credits;
char *subject=(char *)malloc(N*(sizeof(char)));
for(int i=0;i<N;i++)
{scanf("%s",&subject[i]);
scanf("%d",&credits);
sum+=credits;
}

}


int main()
{char name[50];int N;
```

input

```
Ram
Yes
3
dsa
4
algo
3
ai
4
11

...Program finished with exit code 0
Press ENTER to exit console.
```

2. **Write a C Program to perform the following operation:**

i) Create a list of 'n' integers.

ii) Insert the new integer in the mid position of the list created. Show the number of shifting is performed and traversing to position the location.

iii) Create a linked list of 'n' integers.

iv) Insert the new integer in the mid position of the linked list created. Show the number of shifting is performed traversing to position the location.

CODE:

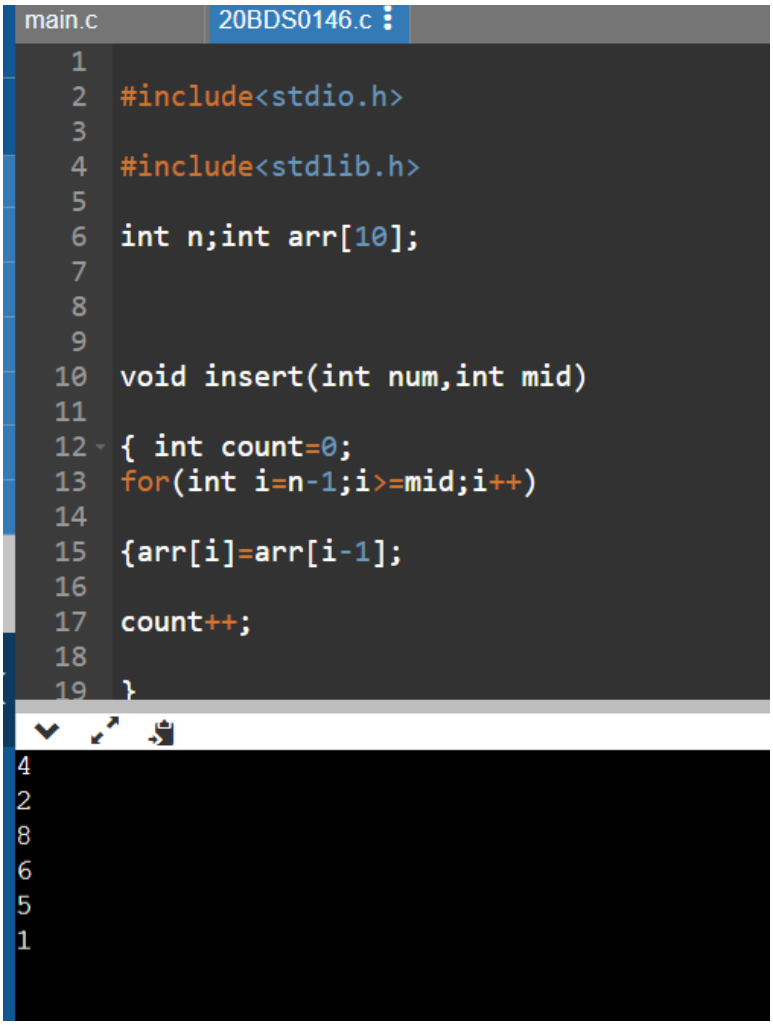
```
#include<stdio.h>

#include<stdlib.h>

int n;int arr[10];



void insert(int num,int mid)

{ int count=0;
for(int i=n-1;i>=mid;i++)

{arr[i]=arr[i-1];

count++;
```

```
}

arr[mid-1]=num;
printf("List after inserting element is:");
for(int j=0;j<n;j++)
{printf("%d",arr[j]);}
printf("Number of shiftings:%d",count);



}



void main()

{int a;

int mid;
```

```
scanf("%d",&n);

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

{scanf("%d\n",&arr[i]);}

scanf("%d",&a);
printf("Hellp");
for(int j=0;j<n;j++)
{printf("%d\t",arr[j]);}



if((n%2)!=0)

{mid=(n+1)/2;}

else

{mid=n/2;}
```

```
insert(a,mid);




}
```

OUTPUT:



3. **Write a C program to read the student information such as Name (First name, Last name), Marks of five subjects, DOB(day,month,year).Demonstrate the memory allocation (size) for the above information using structure, union and bit fields.**

CODE:

#include<stdio.h>

```
#include<stdlib.h>

int main()
{
struct read

{

struct Name

  {char First_name[100];

   char Last_name[100];

  }n;

int marks[5];

struct DOB
```

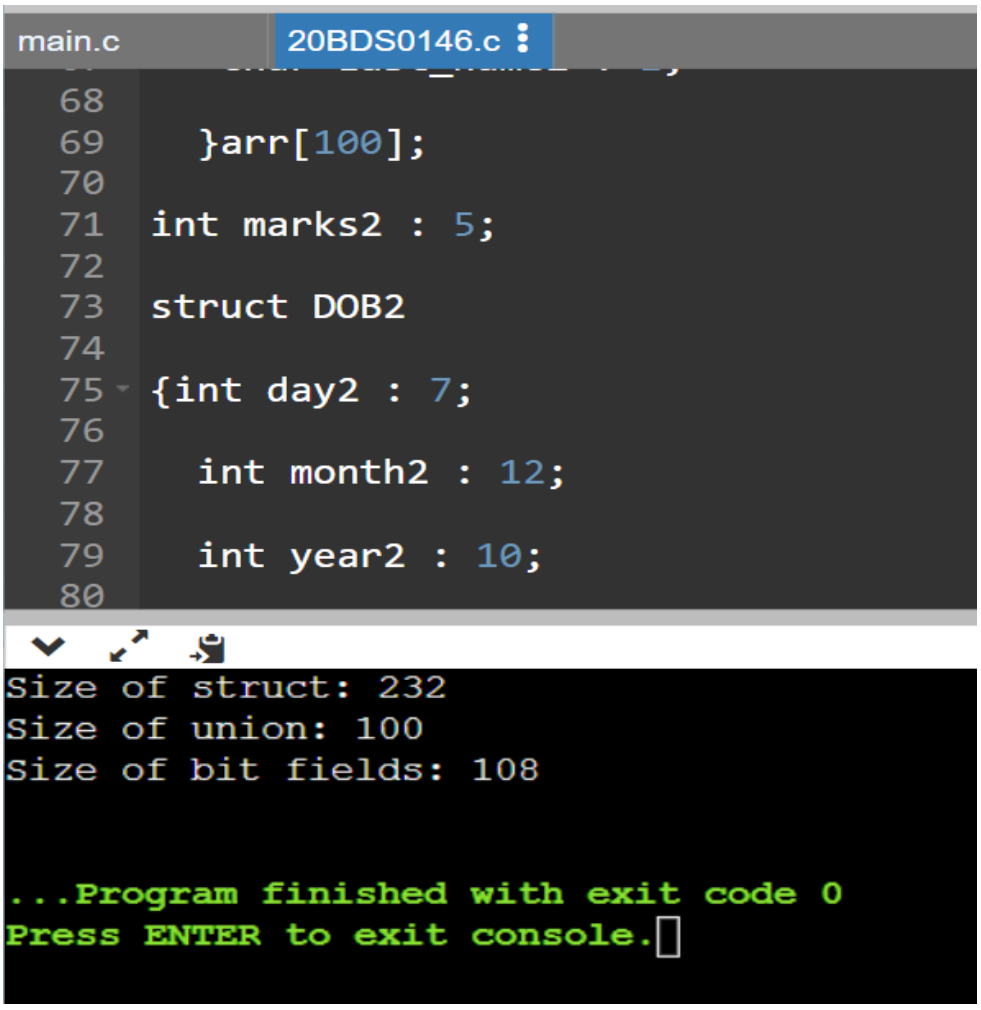
```
{int day;

  int month;

  int year;

}d;

};
struct read r;
printf("Size of struct: %ld\n", sizeof(r));
union read1
{
union Name1

  {char First_name1[100];

   char Last_name1[100];

  }n1;
```

```
int marks1[5];

union DOB1

{int day1;

  int month1;

  int year1;

}d1;

};
union read1 r1;
printf("Size of union: %ld\n", sizeof(r1));
struct read2

{
```

```
struct Name2

  {char First_name2 : 1;

   char Last_name2 : 1;

  }arr[100];

int marks2 : 5;

struct DOB2

{int day2 : 7;

  int month2 : 12;

  int year2 : 10;

}d2;
```

```
};
struct read2 r2;
printf("Size of bit fields: %ld\n", sizeof(r2));

return 0;
}
```

OUTPUT:



4. Write a C Program to allocate array of char * based on the number of characters in the days (Monday), given by the user. Store the strings in each allocation, where the string should start as the character of the day. (Use Dynamic memory allocation)

CODE:

```
#include<stdio.h>

#include<string.h>

#include<stdlib.h>
```

```
int main()



{ char *day;



scanf("%s",day);



day=(char *)malloc(strlen(day)*sizeof(char));



char
arr[]={'m','o','r','n','i','n','g','d','r','e','a','m','y','o','u','t','i','g','e','r','s','u','p'
,'e','r','w','o','r','k','h','o','r','s','e','f','i','r','s','t'};

char (*ptr)[strlen(day)-1];

ptr = arr;
```

```
for(int i=0;i<strlen(day)-1;i++)
{if(strcmp(day[i],arr[i])==0)
{for(int j=0;j<strlen(day[i])-1;j++)
{printf("%d",arr[j]);}
  }
printf("\n");

}
}
```