Question 1

Source code:

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

struct Meal
{
        int cost;
        char food_name [30];
        float calories;
        char type[20];
};

int main(){
        {
        // meal is the variable of structure Meal
        struct Meal meal[10];

        printf("Enter the name of the food\n");

      for(int i=0;i<4;i++){
        printf("Name of food %d: ",i+1);
        scanf("%s",meal[i].food_name);
        printf("Calories contain in food %d: ",i+1);
        scanf("%f",&meal[i].calories);
        printf("Type of the food %d: ",i+1);
        scanf("%s",meal[i].type);
        printf("Cost of the food %d: ",i+1);
        scanf("%d",&meal[i].cost);

      }
     printf(" \n");
     printf("Results:  \n");
     for(int j=0;j<4;j++){

        printf("Food_name %d: %s \n",j+1,meal[j].food_name);
        printf("Calories of food %d: %f \n",j+1,meal[j].calories);
        printf("Types of food %d: %s \n",j+1,meal[j].type);
        printf("Cost of food %d: %d \n",j+1,meal[j].cost);
     }

  };

  return 0;

}
```

Output:

```
Enter the name of the food
Name of food 1: Banana
Calories contain in food 1: 65
Type of the food 1: Fruit
Cost of the food 1: 20
Name of food 2: Cabbage
Calories contain in food 2: 10
Type of the food 2: Vegetable
Cost of the food 2: 70
Name of food 3: Rice
Calories contain in food 3: 48
Type of the food 3: Food
Cost of the food 3: 200
Name of food 4: Bread
Calories contain in food 4: 92
Type of the food 4: Food
Cost of the food 4: 100

Results:
Food_name 1: Banana
Calories of food 1: 65.000000
Types of food 1: Fruit
Cost of food 1: 20
Food_name 2: Cabbage
Calories of food 2: 10.000000
Types of food 2: Vegetable
Cost of food 2: 70
Food_name 3: Rice
Calories of food 3: 48.000000
Types of food 3: Food
Cost of food 3: 200
Food_name 4: Bread
Calories of food 4: 92.000000
Types of food 4: Food
Cost of food 4: 100
```

Question 2

Source code:

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
struct book
{
    float b_price;
    char b_name[100];
    char b_author[100];
    char variable;
};
int main()
{
    struct book b[100];
    int    ch,n,i,count = 0;
    char   temp[60];
    char A[80];
    int v;
    do
{
    printf("------------------MENU-----------------------");
    printf("\nClick 1.TO ADD BOOK DETAILS.");
    printf("\nClick 2.TO DISPLAY BOOK INFORMATION.");
    printf("\nClick 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.");
    printf("\nClick 4.TO LIST THE TITLE OF SPECIFIED BOOK.");
    printf("\nClick 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.");
    printf("\nClick 6.TO EXIT.");
    printf("\n-------------------------------------\n");
    printf("Enter Your Choice: ");
    scanf("%d",&ch);
    switch(ch)
    {
    case 1:
        printf("\nHow Many Records You Want to Add: ");
        scanf("%d",&n);
        printf("-------------------------------------\n");
        printf("Add Details of %d Book\n",n);
        printf("-------------------------------------\n");
        for(i = 0 ; i < n ; i++)
        {
            printf("Book Name: ");
            scanf("%s",b[i].b_name);
            printf("Enter Author Name: ");
            scanf("%s",b[i].b_author);
            printf("Enter Book Price: ");
            scanf("%f",&b[i].b_price);
            printf("You Want to issue book or not? : ");
            scanf("%s",&b[i].variable);
            printf("\n-------------------------------------\n");
        }
```

```
        break;

         case 2:
         printf("\n\t\tDetails of All Book");
         printf("\n------------------------------------------------------------\n");

        for(int m=0;m<n;m++){
            printf("Name Of Author: %s  Book Name: %s  Price: %f  Issue Status: %c \n",
b[m].b_author,b[m].b_name,b[m].b_price,b[m].variable);
        }
        // printf("\n\n");
        break;

        case 3:
        printf("\nEnter Author Name: ");
        scanf("%s",temp);
        printf("---------------------------------------");
        for( i = 0 ; i < n ; i++)
        {
            if(strcmp(b[i].b_author,temp) == 0)
            {
                printf("\n%s\n",b[i].b_name);
            }
        }
        break;

        case 4:

        printf("Enter Title Of The Book: ");
        scanf("%s",A);
        for(int k=0;k<n;k++)
        {
            int compare=strcmp(A,b[k].b_name);
            if(compare==0){
            printf("Title: %s  Name Of Author: %s  Price: %f  Issue Status: %c\
n",b[k].b_name,b[k].b_author,b[k].b_price,b[k].variable);
            }
        }



        case 5:
        printf("\nTotal Number of Books in Library: %d\n",n);

        printf("----------------------------------------\n");
        break;

        case 6 :
         exit(0);
        }

    }
```

```
    while(ch != 6);
    return 0;
}
```

Output:

```
------------------MENU-----------------------
Click 1.TO ADD BOOK DETAILS.
Click 2.TO DISPLAY BOOK INFORMATION.
Click 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.
Click 4.TO LIST THE TITLE OF SPECIFIED BOOK.
Click 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.
Click 6.TO EXIT.
-------------------------------------
Enter Your Choice: 1

How Many Records You Want to Add: 2
-------------------------------------
Add Details of 2 Book
-------------------------------------
Book Name: love
Enter Author Name: ugyen
Enter Book Price: 333
You Want to issue book or not? : y

-------------------------------------
Book Name: killers
Enter Author Name: rohit
Enter Book Price: 500
You Want to issue book or not? : n

-------------------------------------
------------------MENU-----------------------
Click 1.TO ADD BOOK DETAILS.
Click 2.TO DISPLAY BOOK INFORMATION.
Click 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.
Click 4.TO LIST THE TITLE OF SPECIFIED BOOK.
Click 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.
Click 6.TO EXIT.
-------------------------------------
Enter Your Choice: 5

Total Number of Books in Library: 2
-----------------------------------------
------------------MENU-----------------------
Click 1.TO ADD BOOK DETAILS.
Click 2.TO DISPLAY BOOK INFORMATION.
Click 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.
Click 4.TO LIST THE TITLE OF SPECIFIED BOOK.
Click 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.
Click 6.TO EXIT.
```

```
-----------------------------------
Enter Your Choice: 4
Enter Title Of The Book: love
Title: love  Name Of Author: ugyen  Price: 333.000000  Issue Status: y

Total Number of Books in Library: 2
----------------------------------------
-----------------MENU-----------------------
Click 1.TO ADD BOOK DETAILS.
Click 2.TO DISPLAY BOOK INFORMATION.
Click 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.
Click 4.TO LIST THE TITLE OF SPECIFIED BOOK.
Click 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.
Click 6.TO EXIT.
-----------------------------------
Enter Your Choice: 2

                    Details of All Book
------------------------------------------------------------
Name Of Author: ugyen  Book Name: love  Price: 333.000000  Issue Status: y
Name Of Author: rohit  Book Name: killers  Price: 500.000000  Issue Status: n
-----------------MENU-----------------------
Click 1.TO ADD BOOK DETAILS.
Click 2.TO DISPLAY BOOK INFORMATION.
Click 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.
Click 4.TO LIST THE TITLE OF SPECIFIED BOOK.
Click 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.
Click 6.TO EXIT.
-----------------------------------
Enter Your Choice: 3

Enter Author Name: rohit
-------------------------------------
killers
-----------------MENU-----------------------
Click 1.TO ADD BOOK DETAILS.
Click 2.TO DISPLAY BOOK INFORMATION.
Click 3.TO DISPLAY BOOK OF SPECIFIED AUTHOR.
Click 4.TO LIST THE TITLE OF SPECIFIED BOOK.
Click 5.TO LIST THE COUNT OF BOOKS IN THE LIBRARY.
Click 6.TO EXIT.
-----------------------------------
Enter Your Choice: 6
```

Question 3

Source code:

```
#include <stdio.h>
struct Hotel
	{
		char Name[20];
		char Address[20];
		int Grade;
		int Room_Charge;
		int Rooms;
	};
void output();
void out();
		struct Hotel Details[]={
		{"A","Thimphu",3,4500,50},
		{"B","Gelephu",4,5000,100},
		{"C","Zhemgang",2,4000,50},
		{"D","Bumthang",5,6000,200},
		{"E","Gyalpozhing",1,3500,150}
		};
int main()
{
	int n;

	printf("Enter 1 for grade search\n");
	printf("Enter 2 to search by charge:\n");
	scanf("%d",&n);
	switch(n)
	{
	case 1: output();
	break;
	case 2: out();
	break;
	default:printf("Wrong input");
	break;
	}
	return 0;
}
void output()
{
	int gr,i;
	printf("Enter Grade 1 to 5:");
	scanf("%d",&gr);
	if(gr>=1||gr<=5)
	{
		for(i=0;i<=4;i++)
		{
		if(Details[i].Grade==gr)
			printf("Hotel Name: %s\nAddress:%s\nGrade:%d\nAverage Room charge:
%d\nNumber of Rooms:%d\
n",Details[i].Name,Details[i].Address,Details[i].Grade,Details[i].Room_Charge,Details[i].Rooms);
```

```
                }
        }
        else
        printf("Wrong grade input!");
}
void out()
{
        int ch,i=0;
        printf("Enter the Room charges not greater than 6000:");
        scanf("%d",&ch);
        while(i<5)
                {
                if(Details[i].Room_Charge<ch)
                printf("Hotel Name: %s\nAddress:%s\nGrade:%d\nAverage Room charge:%d\
nNumber of Rooms:%d\
n",Details[i].Name,Details[i].Address,Details[i].Grade,Details[i].Room_Charge,Details[i].Rooms);
                i++;
        }
}
```

Output 1:

```
Enter 1 for grade search
Enter 2 to search by charge:
1
Enter Grade 1 to 5:2
Hotel Name: C
Address:Zhemgang
Grade:2
Average Room charge:4000
Number of Rooms:50
```

Output 2:

```
Enter 1 for grade search
Enter 2 to search by charge:
2
Enter the Room charges not greater than 6000:3600
Hotel Name: E
Address:Gyalpozhing
Grade:1
Average Room charge:3500
Number of Rooms:150
```

Question 4

Source code:

```
#include <stdio.h>
struct Distance
{
   int feet;
   float inch;
} d1, d2, sum;

int main()
{
   printf("Enter information for 1st distance\n");
   printf("Enter feet: ");
   scanf("%d", &d1.feet);

   printf("Enter inch: ");
   scanf("%f", &d1.inch);
   printf("Enter the information for 2nd distance\n");

   printf("Enter feet: ");
   scanf("%d", &d2.feet);

   printf("Enter inch: ");
   scanf("%f", &d2.inch);

   // adding feet
   sum.feet = d1.feet + d2.feet;
   // adding inches
   sum.inch = d1.inch + d2.inch;

   // changing to feet if inch is greater than 12
   while (sum.inch >= 12)
   {
      ++sum.feet;
      sum.inch = sum.inch - 12;
   }

   printf("Sum of distances = %d\'-%.1f\"\n", sum.feet, sum.inch);
   return 0;
}
```

Output:

```
Enter information for 1st distance
Enter feet: 12
Enter inch: 3.45
Enter the information for 2nd distance
Enter feet: 12
Enter inch: 9.2
Sum of distances = 25'-0.6"
```

Question 5

Source code:

```
#include <stdio.h>
struct number
{
  int real_num, imginary_num;
};

int main()
{
  struct number x, y, z;

  printf("Enter x and y where x + iy is the first complex number.\n");
  scanf("%d%d", &x.real_num, &x.imginary_num);
  printf("Enter z and d where z + id is the second complex number.\n");
  scanf("%d%d", &y.real_num, &y.imginary_num);

  z.real_num = x.real_num + y.real_num;
  z.imginary_num = x.imginary_num + y.imginary_num;

  printf("Sum Of Complex Numbers: %d + (%di)\n", z.real_num, z.imginary_num);

  return 0;
}
```

Output:

```
Enter x and y where x + iy is the first complex number.
5 4
Enter z and d where z + id is the second complex number.
6 7
Sum Of Complex Numbers: 11 + (11i)
```