computeExp

A structure is defined to represent an arithmetic expression:

```
typedef struct {
    float operand1, operand2;
    char op;      /* operator '+','-','*' or '/'  */
} bexpression;
```

(a) Write a C function that computes the value of an expression and returns the result. For example, the function will return the value of 4/2 if in the structure passed to it, operand1 is 4, operator is '/' and operand2 is 2. The function prototype is given as follows:

```
float compute1(bexpression expr);
```

(b) Write another C function that performs the same computation with the following function prototype:

```
float compute2(bexpression *expr);
```

A sample program template is given below to test the functions:

```
#include <stdio.h>
typedef struct {
  float operand1, operand2;
  char op;
} bexpression;
float compute1(bexpression expr);
float compute2(bexpression *expr);
int main()
{
  bexpression e;
  int choice;

  printf("Select one of the following options: \n");
  printf("1: compute1()\n");
  printf("2: compute2()\n");
  printf("3: exit()\n");
  do {
    printf("Enter your choice: \n");
    scanf("%d", &choice);
    switch (choice) {
      case 1:
        printf("Enter expression (op1 op2 op): \n");
        scanf("%f %f %c", &e.operand1, &e.operand2, &e.op);
        printf("compute1(): %.2f\n", compute1(e));
        break;
      case 2:
        printf("Enter expression (op1 op2 op): \n");
        scanf("%f %f %c", &e.operand1, &e.operand2, &e.op);
        printf("compute2(): %.2f\n", compute2(&e));
```

```
            break;
        }
    } while (choice < 3);
    return 0;
}
float compute1(bexpression expr)
{
    /* Write your code here */
}
float compute2(bexpression *expr)
{
    /* Write your code here */
}
```

Some sample input and output sessions are given below:

(1) Test Case 1:

```
Select one of the following options:
1: compute1()
2: compute2()
3: exit()
Enter your choice:
1
Enter expression (op1 op2 op):
5 8 +
compute1(): 13.00
Enter your choice:
2
Enter expression (op1 op2 op):
5 8 +
compute2(): 13.00
Enter your choice:
3
```

(2) Test Case 2:

```
Select one of the following options:
1: compute1()
2: compute2()
3: exit()
Enter your choice:
1
Enter expression (op1 op2 op):
8 5 /
compute1(): 1.60
Enter your choice:
2
Enter expression (op1 op2 op):
8 5 /
compute2(): 1.60
```

Enter your choice:
3

(3) Test Case 3:
Select one of the following options:
1: compute1()
2: compute2()
3: exit()
Enter your choice:
1
Enter expression (op1 op2 op):
*5 8 **
compute1(): 40.00
Enter your choice:
2
Enter expression (op1 op2 op):
*5 8 **
compute2(): 40.00
Enter your choice:
3

(4) Test Case 4:
Select one of the following options:
1: compute1()
2: compute2()
3: exit()
Enter your choice:
1
Enter expression (op1 op2 op):
8 5 -
compute1(): 3.00
Enter your choice:
2
Enter expression (op1 op2 op):
8 5 -
compute2(): 3.00
Enter your choice:
3