

C programming basic problems and solutions

Part #3

1. 1D Array value assign and print

Solution:

```
int main(){
    int arr[3] = {1, 2, 3};
    for(int i=0; i<3; i++){
        printf("%d ",arr[i]);
    }
    return 0;
}
```

2. 1D Array value input from user and print

Solution:

```
#include <stdio.h>
int main(){
    int arr[3];
    printf("Enter values: \n");
    for(int i=0; i<3; i++){
        scanf("%d", &arr[i]);
    }

    printf("Here are the values: \n");
    for(int i=0; i<3; i++){
        printf("%d ", arr[i]);
    }

    return 0;
}
```

3. Array dynamic size input plus value input and print

Solution:

```
#include <stdio.h>
int main(){
    int s;
    printf("Enter size: ");
    scanf("%d", &s);
    int arr[s];
    printf("Enter values: \n");
    for(int i=0; i<s; i++){
        scanf("%d", &arr[i]);
    }

    printf("Here are the values: \n");
    for(int i=0; i<s; i++){
        printf("%d ", arr[i]);
    }
    return 0;
}
```

4. Odd number print from array (dynamic)

Solution:

```
#include <stdio.h>
int main(){
    int s;
    printf("Enter size: ");
    scanf("%d", &s);
    int arr[s];
    printf("Enter values: \n");
    for(int i=0; i<s; i++){
        scanf("%d", &arr[i]);
    }
    printf("Here are odd values: \n");
    for(int i=0; i<s; i++){
        if(arr[i]%2!=0){
            printf("%d ", arr[i]);
        }
    }
    return 0; }
```

5. Even number print from array (dynamic)

```
#include <stdio.h>
int main(){
    int s;
    printf("Enter size: ");
    scanf("%d", &s);
    int arr[s];
    printf("Enter values: \n");
    for(int i=0; i<s; i++){
        scanf("%d", &arr[i]);
    }

    printf("Here are odd values: \n");
    for(int i=0; i<s; i++){
        if(arr[i]%2==0){
            printf("%d ", arr[i]);
        }
    }
    return 0;
}
```

6. Total sum of array values (dynamic)

Solution:

```
#include <stdio.h>
int main(){
    int s;
    printf("Enter size: ");
    scanf("%d", &s);
    int arr[s], sum = 0;
    printf("Enter values: \n");
    for(int i=0; i<s; i++){
        scanf("%d", &arr[i]);
        sum = sum+arr[i];
    }
    printf("Sum of array values = %d \n", sum);

    return 0;
}
```

7. Array values print in reverse order (dynamic)

Solution:

```
#include <stdio.h>
int main(){
    int s;
    printf("Enter size: ");
    scanf("%d", &s);
    int arr[s], sum = 0;
    printf("Enter values: \n");
    for(int i=0; i<s; i++){
        scanf("%d", &arr[i]);
    }

    for(int i=s-1; i>=0; i--){
        printf("%d ", arr[i]);
    }
    return 0;
}
```

8. 2D Array value assign and print (3X3 matrix static)

Solution:

```
#include <stdio.h>
int main(){
    int arr2D[3][3] = { {1, 2, 3},
                        {4, 5, 6},
                        {7, 8, 9} };

    printf("Here are the values: \n");
    for(int i=0; i<3; i++){
        for(int j=0; j<3; j++){
            printf("%d ", arr2D[i][j]);
        }
        printf("\n");
    }
    return 0;
}
```

9. User defined function basic example

Example:

```
#include <stdio.h>

int add(int a, int b){
    return a+b;
}
int sub(int a, int b){
    return a-b;
}

int main(){

    int a, b, choice;
    printf("Enter choice: 1.ADD, 2.SUB\n");
    scanf("%d", &choice);

    if(choice == 1){
        printf("Enter two numbers: \n");
        int a, b;
        scanf("%d %d", &a, &b);
        printf("Addition is = %d\n", add(a, b));
    }
    else if(choice == 2){
        printf("Enter two numbers: \n");
        int a, b;
        scanf("%d %d", &a, &b);
        printf("Subtraction is = %d\n", sub(a, b));
    }
    else{
        printf("Invalid chocie \n");
    }

    return 0;
}
```

10. C program to make your own power function (pow)

Solution:

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

```
int myPow(int b, int e){  
    if(e==0){  
        return 1;  
    }  
    else{  
        int result = 1;  
        for(int i=1; i<=e; i++){  
            result = result*b;  
        }  
    }  
}
```

```
    return result;  
}
```

```
}
```

```
int main(){
```

```
    printf("Enter base and power/exponent: \n");  
    int base, power;  
    scanf("%d %d", &base, &power);
```

```
    printf("Result = %d \n", myPow(base, power));
```

```
    return 0;  
}
```