Chapter 1

Assignment #5

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1.1 Question 1

```
#include <stdio.h>

int max(int *arr, int start, int end, int maxind);

int main() {

  int limit;

  printf("Enter the number of array elements: ");
  scanf("%d", &limit);

  int arr[limit];
  for (int x = 0; x < limit; x++) {

    int a;
    printf("Enter element %d: ", x + 1);
    scanf("%d", &a);
    arr[x] = a;
  }

  printf("The maximum element is: %d\n", max(arr, 0, limit, 0));
}

int max(int *arr, int start, int end, int maxind) {

  int _max = arr[maxind];
```

```
  if (start < end) {

    if (arr[start] > _max) {

      _max = arr[start];
      max(arr, start + 1, end, start);
    }
    else {

      max(arr, start + 1, end, maxind);
    }
  }
  else {return _max;}
}
```

1.2 Question 2

```
#include <stdio.h>

int sum(int *arr, int start, int end, int startsum);

int main() {

  int limit;

  printf("Enter the number of array elements: ");
  scanf("%d", &limit);

  int arr[limit];
  for (int x = 0; x < limit; x++) {

    int a;
    printf("Enter element %d: ", x + 1);
    scanf("%d", &a);
    arr[x] = a;
  }

  printf("The sum of the array's elements is: %d\n",
    sum(arr, 0, limit, 0));
}

int sum(int *arr, int start, int end, int startsum) {
```

```
    if (start < end) {

      startsum += arr[start];
      sum(arr, start + 1, end, startsum);
    }
    else {return startsum;}
  }
```

1.3 Question 3

```
#include <stdio.h>

#define new printf("\n")

void reverse(int *arr, int end);

int main() {

  int limit;

  printf("Enter the number of array elements: ");
  scanf("%d", &limit);

  int arr[limit];
  for (int x = 0; x < limit; x++) {

    int a;
    printf("Enter element %d: ", x + 1);
    scanf("%d", &a);
    arr[x] = a;
  }

  reverse(arr, limit - 1);
}

void reverse(int *arr, int end) {

  if (end >= 0) {

    printf("%d ", arr[end]);
    reverse(arr, end - 1);
  }
  else {new; return;}
}
```

1.4 Question 4

```
#include <stdio.h>

int secondlargest(int *arr, int end);

int main() {

  int limit;

  printf("Enter the number of array elements: ");
  scanf("%d", &limit);

  int arr[limit];
  for (int x = 0; x < limit; x++) {

    int a;
    printf("Enter element %d: ", x + 1);
    scanf("%d", &a);
    arr[x] = a;
  }
  printf("The second largest element in the array is: %d",
        secondlargest(arr, limit));
}

int secondlargest(int *arr, int end) {

  int temp;

  for (int x = 0; x < end; x++) {

    for (int y = 0; y < end; y++) {

      if (arr[x] < arr[y]) {

        temp = arr[x];
        arr[x] = arr[y];
        arr[y] = temp;
      }
    }
  }

  return arr[end - 2];
}
```

1.5 Question 5

```
#include <stdio.h>

int main() {

  char arr1[3] = {1, 2, 3};
  char arr2[3] = {10, 12, 14};
  int arr3[6];
  for (int i = 0; i < 3; i++) {
    arr3[i] = arr1[i];
  }
  for (int i = 0; i < 6; i++) {
    arr3[i] = arr1[i];
  }
}
```