

UNIVERSITY *of* MARYLAND  
UNIVERSITY COLLEGE - *Asian Division*

## Project 2: Dice Rolling Program

### Objective:

In this lab you will create a C++ programming language program that utilizes output, selection, and loop structures, random number generator functions, and at least two user defined functions. The program is due the fourth week of classes at the second class. No late project reports will be accepted.

### Program Requirements:

This program will calculate the score and determine the distribution of 10,000 rolls of two dice. The score for two dice is between two and twelve. Display the totals for each of the scores (2 to 12) and a bar graph with each equal sign scaled to represent 100 rolls of that score (Similar format to grade distribution program). You are also required to write at least two of your OWN functions in this program. You will need to use the Random number generator functions that have prototypes in the `cstdlib` and `ctime` header files. The functions you will need to use are the `srand( )`, `time(NULL)` and `rand( )` functions. Examine these functions in the Visual C++ help files. To initialize the random number generator seed value use `srand((unsigned) time(NULL));` Use `rand( )` to generate a random number. You will need to create at least two user defined functions.

### PROJECT REPORT:

Submit; on or before the due date the following for grading: A cover sheet with your name and project name. Program specifications document that describes the analysis involved during the problem solving phase. This must include incremental flow charts during development labeling major processing sections and test data. Include a source code listing for your program and a printout of your output window for several runs. Note as specified on the Syllabus a grade of 80% will be awarded for fulfilling all program specifications in a minimal way. To exceed an 80% grade you must exceed the requirements and neatness does count. Extra work possibilities include: more then two user defined functions, multiple runs, auto-scaling, and disk write of the results. At the end of your report include a conclusion section that describes extra work efforts and items that don't work in your program. I will attempt to find the described errors in the source code.

```
#include <cstdlib>
```

```
int rand(void);
```

*Description:*

Random number generator.

*Return Value:* rand returns the generated pseudorandom number.

```
#include <cstdlib>
```

```
void srand(unsigned seed);
```

*Description:*

Initializes random number generator. It can be set to a new starting point by calling `srand` with a given seed number.

*Return Value:* None.

```
#include <ctime>
```

```
long time(NULL);
```

*Description:*

Time returns the current time, in seconds, elapsed since 00:00:00 GMT, January 1, 1970.

*Return Value:* The elapsed time in seconds.