**C++ Programming**

**Term 1, 2014**

**Week 2 – Dynamic Memory Allocation**

**Task 1**

Predict the output of the following C++ program. Write your predictions down on paper and then build and run the program to test your predictions

// rememb-o-matic

#include <iostream>

using namespace std;

int main ()

{

int i,n;

int \* p;

cout << "How many numbers would you like to type? ";

cin >> i;

p= new (nothrow) int[i];

if (p == 0)

cout << "Error: memory could not be allocated";

else

{

for (n=0; n<i; n++)

{

cout << "Enter number: ";

cin >> p[n];

}

cout << "You have entered: ";

for (n=0; n<i; n++)

cout << p[n] << ", ";

delete[] p;

}

return 0;

}

**Note**

<< Answer here >>

**Task 2**

Predict the output of the following C++ program. Write your predictions down on paper and then build and run the program to test your predictions

#include <iostream>

using namespace std;

typedef int \*IntPtrType;

int main()

{

IntPtrType ptr\_a, ptr\_b, \*ptr\_c;

ptr\_a = new int;

\*ptr\_a = 3;

ptr\_b = ptr\_a;

cout << \*ptr\_a << " " << \*ptr\_b << "\n";

ptr\_b = new int;

\*ptr\_b = 9;

cout << \*ptr\_a << " " << \*ptr\_b << "\n";

\*ptr\_b = \*ptr\_a;

cout << \*ptr\_a << " " << \*ptr\_b << "\n";

delete ptr\_a;

ptr\_a = ptr\_b;

cout << \*ptr\_a << " " << \*&\*&\*&\*&\*ptr\_b << "\n";

ptr\_c = &ptr\_a;

cout << \*ptr\_c << " " << \*\*ptr\_c << "\n";

delete ptr\_a;

ptr\_a = NULL;

return 0;

}

**Note**

<< Answer here >>

**Challenge Task**

Write a simple C++ program to create dynamic memory allocation for multiple arrays. Your program specification as below:

* Ask user for number of name
* Prompt to get input for each name
* Print out your array address
* Print out first character of each name
* Print out name

**Example**

How many name you want to store? **5**

Please enter name 1: **Kriss**

Please enter name 2: **Steve**

Please enter name 3: **Tony**

Please enter name 4: **Peter**

Please enter name 5: **Robert**

First address of array is: 00345C8

First character of name 1 is: K

First character of name 2 is: S

First character of name 3 is: T

First character of name 4 is: P

First character of name 5 is: R

Kriss

Steve

Tony

Peter

Robert

**HINTS/CHEATS/SPOILERS:**

string \*strArray = new string[5]; //make an array of string dynamically

cout<<strArray; //memory location of strArray

cout<<strArray[0];//the value stored (eh "Matt") in our first string in our string array

cout<<strArray[0][0];//the first value stored in our array and the first character of that string (eg 'M');

Use for loops :D

**Submission**

* Each task should be named as <student\_id>\_<student\_name>\_tut2\_task<task\_number>. E.g. 1234\_Kriss\_tut2\_task1
* Compress your entire project folder and name it as <student\_id>\_<student\_name>\_tut2.zip E.g. 1234\_Kriss\_tut2.zip then upload
* Due date is **Week 3**