

CD Project Report

Project Title : A New Programming Language for Data Structure Visualization

Test Cases :

1. Array Declaration and its Usage:

Input Code:

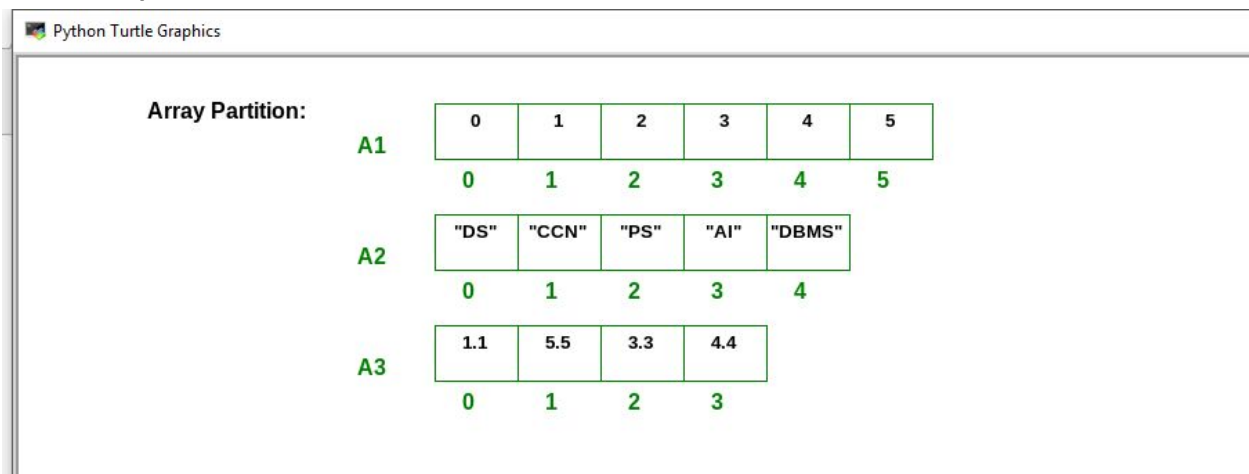
```
Create Array int A1[6];
Create Array string A2[5];
Create Array float A3[4];

for(i in range 6){
    A1.append(i);
};

A2[0] = "DS";
A2[1] = "CCN";
A2[2] = "PS";
A2[3] = "AI";
A2[4] = "DBMS";

A3[0] = 1.1;
A3[1] = 2.2;
A3[2] = 3.3;
A3[3] = 4.4;
A3[1] = 5.5;
```

Output Screen:

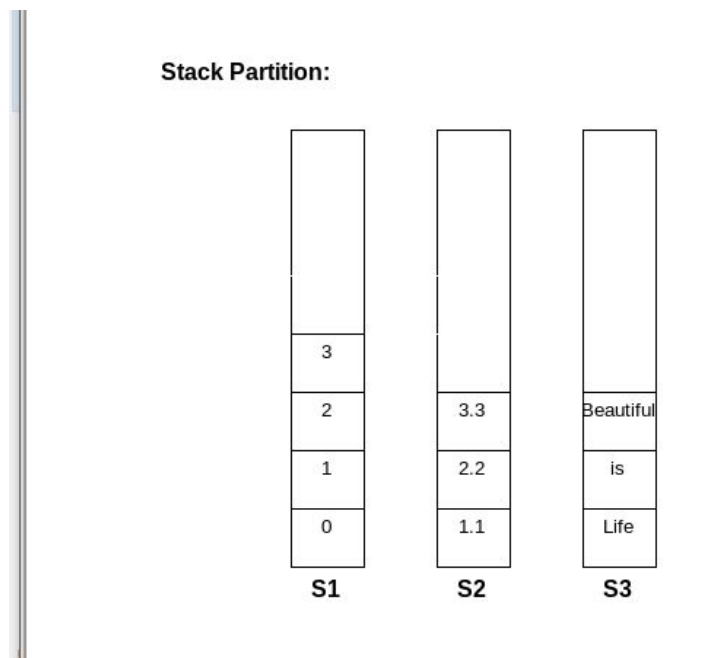


2. Stack Declaration and its Usage:

Input Code:

```
Create Stack int S1;  
Create Stack float S2;  
Create Stack string S3;  
  
for(i in range 5){  
    S1.insert(i);  
};  
  
S1.delete();  
  
S2.insert(1.1);  
S2.insert(2.2);  
S2.insert(3.3);  
S2.insert(4.4);  
S2.insert(5.5);  
S2.delete();  
S2.delete();  
  
S3.insert(Life);  
S3.insert(is);  
S3.insert(Painful);  
S3.delete();  
S3.insert(Beautiful);
```

Output Screen:



3. Queue Declaration and its Usage:

Input Code:

```
Create Queue int Q1;  
Create Queue float Q2;  
Create Queue string Q3;  
  
for(i in range 5){  
    Q1.insert(i);  
};  
  
Q1.delete();  
  
Q2.insert(1.1);  
Q2.insert(2.2);  
Q2.insert(3.3);  
Q2.insert(4.4);  
Q2.insert(5.5);  
Q2.delete();  
Q2.delete();  
  
Q3.insert(Life);  
Q3.insert(is);  
Q3.insert(Painful);  
Q3.delete();  
Q3.insert(Beautiful);
```

Queue Partition:

Q1

1	2	3	4	
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Q2

3.3	4.4	5.5	
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Q3

is	Painful	Beautiful	
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4. All data types declarations and their usages:

Input Code:

```
# Array Part
Create Array int A1[5];
Create Array float A2[6];
Create Array string A3[7];
Create Array int A4[5];

for(i in range 5){
    A1.append(i);
};

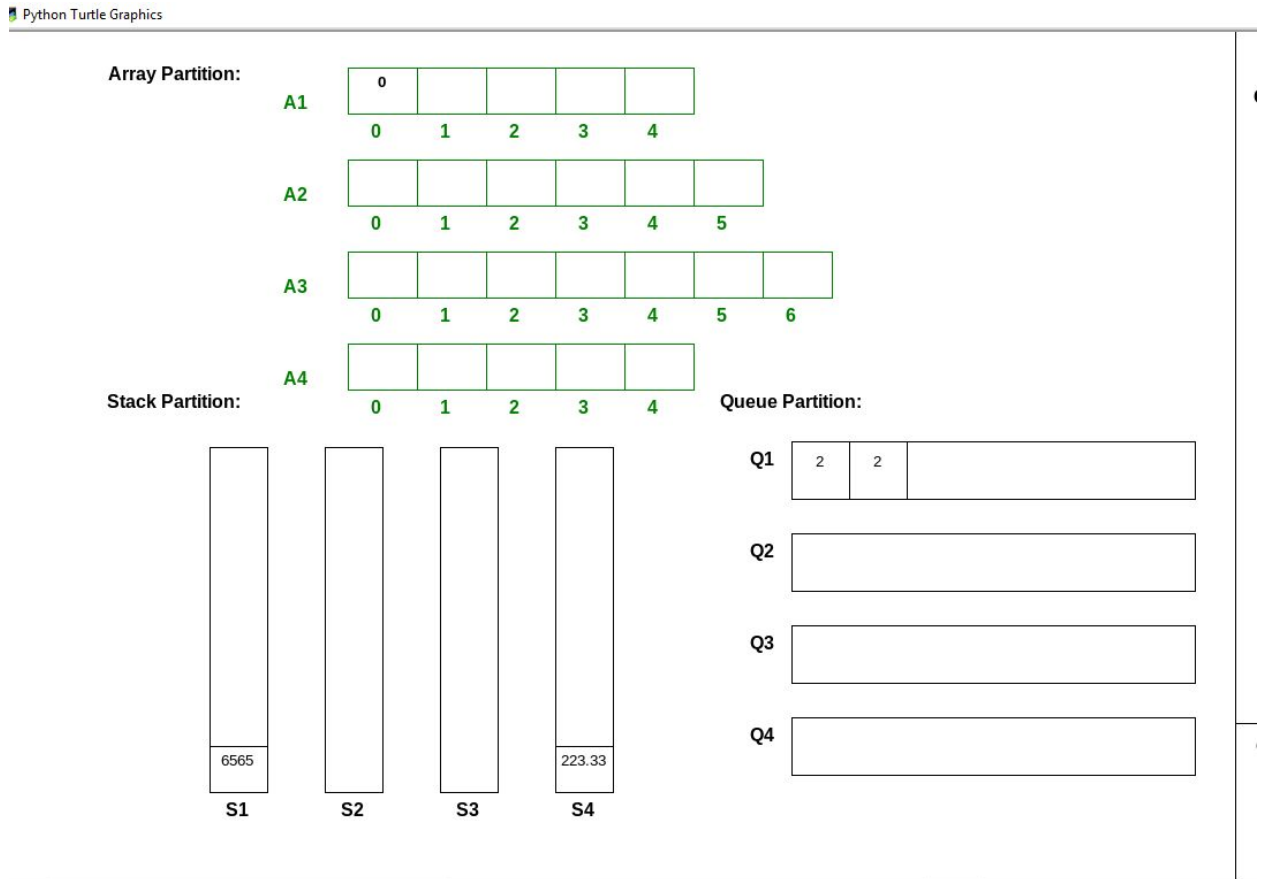
# Queue Part
Create Queue int Q1;
Create Queue float Q2;
Create Queue string Q3;
Create Queue float Q4;

for(i in range 2){
    Q1.insert(2);
};

# Stack Part
Create Stack int S1;
Create Stack float S2;
Create Stack string S3;
Create Stack float S4;

S1.insert(6565);
S4.insert(223.33);
```

Output Screen:



Few More Test Cases:

Case	Input Code	Console Output
If-else loop	<pre> a = 100; b = 25; if (a > b){ c = 1; }; else { c = 0; }; prints a; prints b; prints c; </pre>	<pre> 100 25 1 </pre>

Type Checking	Create Queue int Q1; Q1.insert(5.22); Create Stack float S1; S1.insert(123);	Q1 and 5.22 datatype mismatch S1 and 123 datatype mismatch
Variable un-declaration	Q1.insert(15); Q1.insert(16); Create Stack float S1; Create Array string A1[4]; Create Queue float Q1;	Q1 variable not declared Q1 variable not declared
Memory Allocation	Create Array int A; A.append(33); A.append(44);	IndexError: list index out of range
Syntax Error Detection	Create Queue int Q; Q.insert(232) Q.insert(343); # Missing semicolon in second line	Syntax Error at LexToken(ID,'Q',6,36)
Syntax Error Detection	Create Queue int Q; Q.push(232); #keyword insert should be used in case of push Q.insert(343);	Syntax Error at LexToken(ID,'push',5,23) Syntax Error at LexToken(ID,'Q',6,35)
Variable Redeclaration	Create Queue int Q1; Q1.insert(15); Q1.insert(16); Create Stack float S1; Create Array string A1[4]; Create Queue float Q1;	variable Q1 re declared