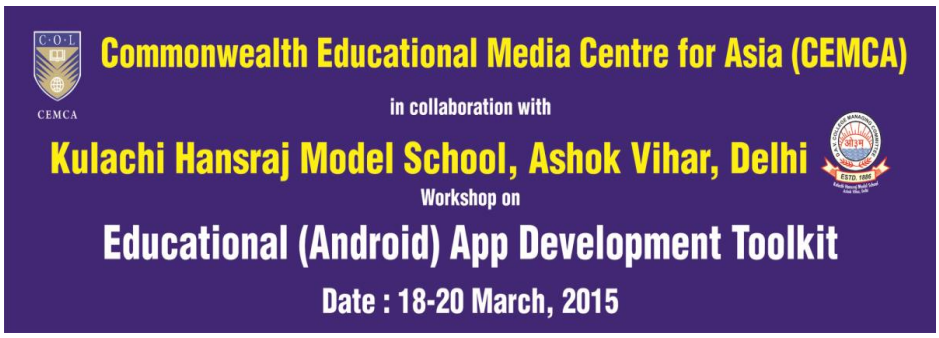
Report of the Workshop on Educational (Android) App Development Toolkit (Teachers)



Organized by:

Commonwealth Educational Media Centre for Asia (CEMCA) and Commonwealth of Learning (COL)
in Collaboration With
Kulachi Hansraj Model School, Ashok Vihar, Delhi

Report Prepared By:
Manas Ranjan Panigrahi, Programme Officer
CEMCA, New Delhi

Introduction

Commonwealth Educational Media Centre for Asia (CEMCA), New Delhi hosted a workshop on Educational (Android) App Development Toolkit from 18-20 March, 2015 in collaboration with Kulachi Hansraj Model School (KHMS), New Delhi on behalf of Commonwealth of Learning (COL), Vancouver, Canada. Twenty five participants from 15 schools of Delhi and NCR attended the workshop.

Dr. Ishan Abeywardena, Director, International Academic Relations Division, Open University of Sri Lanka facilitated this three days workshop.

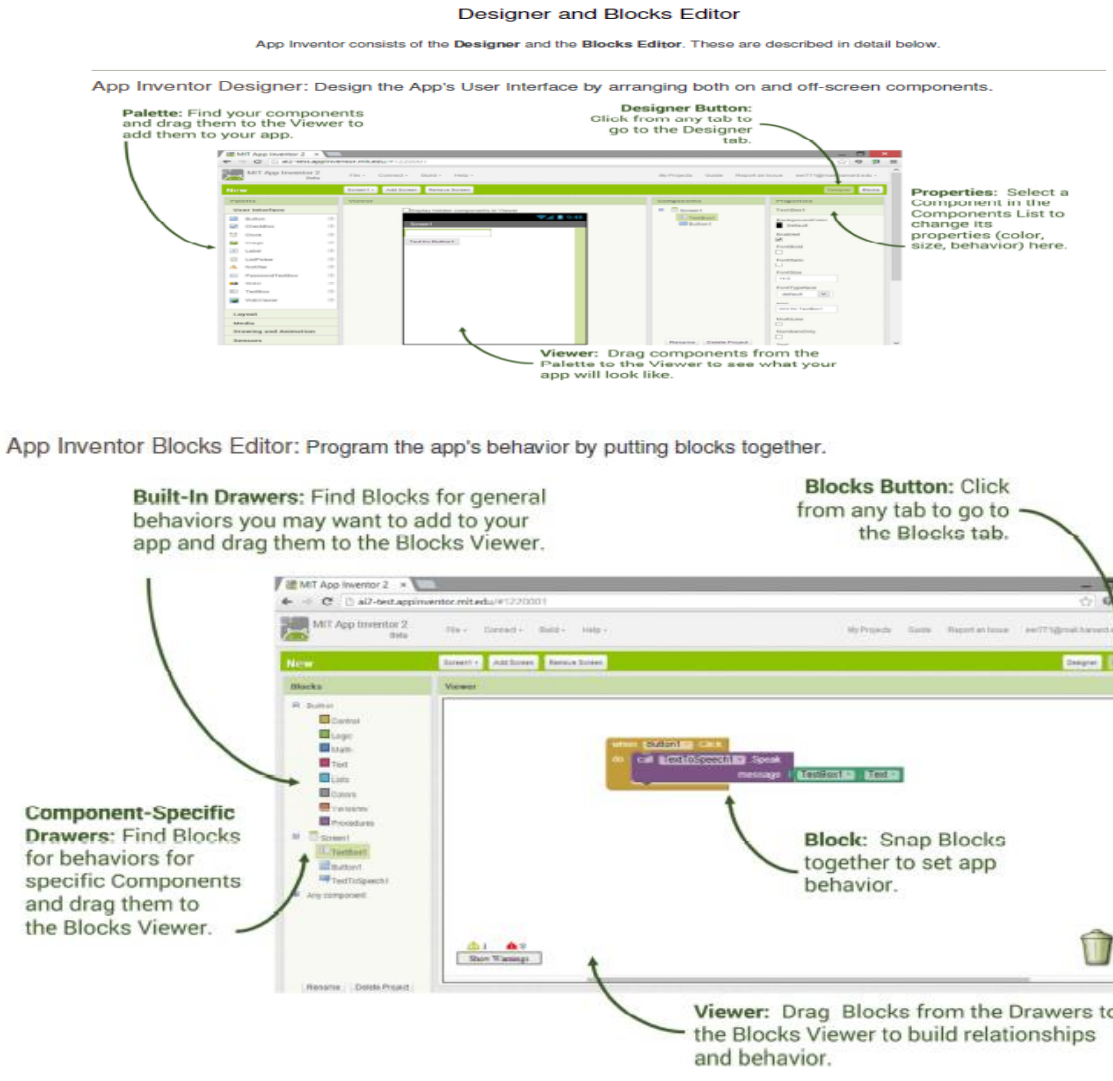
Inaugural Session

The inaugural session of the workshop was started with a prayer. Ms. Sneh Verma, Principal, KHMS welcomed all the participants and thanked respective Principals of the

schools for nominating the teachers to this workshop. In her welcome address she said, "Educators all across the globe are collaboratively working for providing better education to students. Students are the future of this global world. We need to provide them ample opportunities for building different skills for their better life. COL/CEMCA has taken a great initiative for training teachers on creating Educational Android mobile apps for the enhancement of teaching and learning". Dr. Ramesh Sharma (Director, CEMCA) in his welcome address encouraged the participants for learning new ICT applications and integrating them in their teaching. He expressed gratitude to the school Principal Ms. Verma for accepting the proposal for hosting the workshop.

Day 1: 18 March, 2015

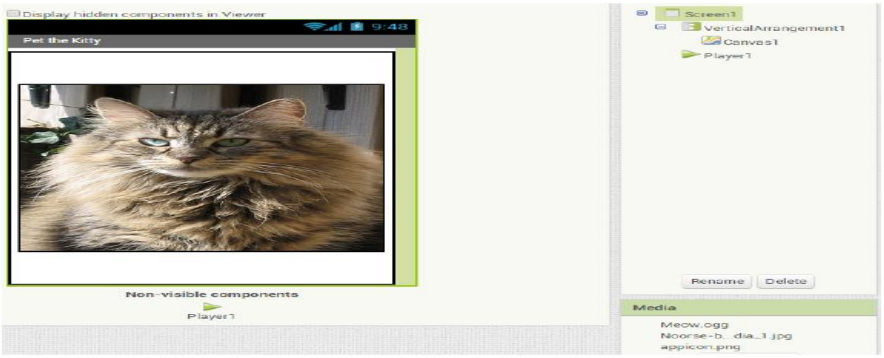
Technical session was conducted by Dr. Ishan. In his opening session, he introduced the teachers to visual programming and MIT App Inventor. Teachers were guided for creating App Inventor account and set up their Android devices for development and debugging. Introduction to the development environment (Designer and Block Editor) was given with the help of examples and demonstration.



Teachers enjoyed using basic components and created eight Apps on first day itself. Some of the Apps were Text to Speech App, Accelerometer App, Speech Recogniser App, Canvas App etc.

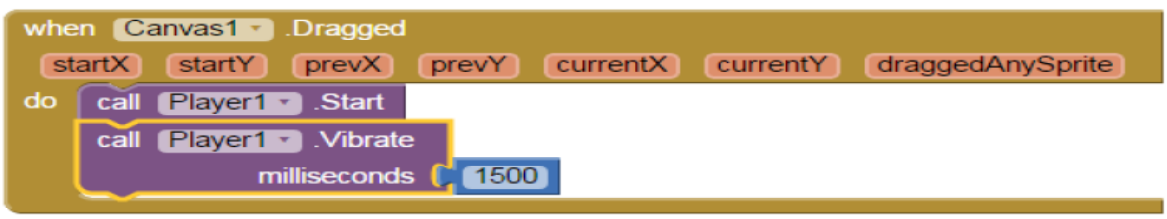
Day 2: 19 March, 2015

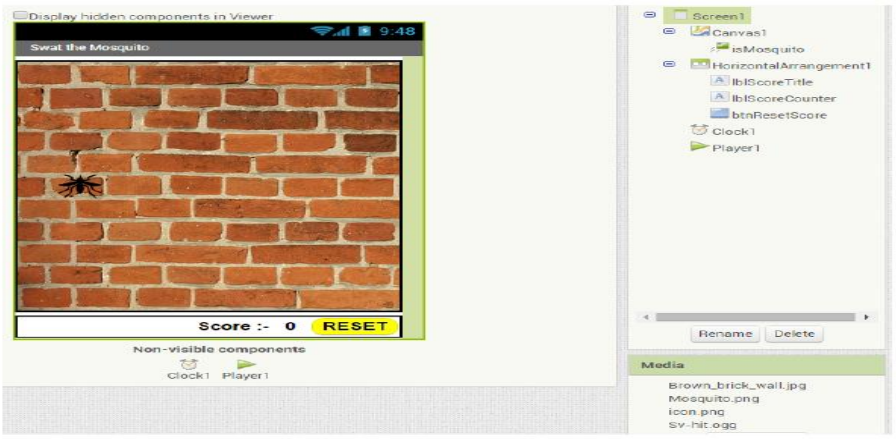
On Second Day of the workshop, intermediate Android programming concepts were discussed. The participants learned various applications like Pet the Kitty, Dice rolling, swat mosquito, storyboard etc.

Project name (AppName)	**COL_PetTheKitty**
App name (Title)	**Pet the Kitty**
App description (AboutScreen)	This is a virtual pet application. An image of of a cat appears in the center of the screen. It makes a purring sound when stroked with a finger. In addition, the phone vibrates to along with the purring sound.
Screenshot	
Expected Learning Outcomes	By the end of this tutorial you should be able to: • Use arrangement components to organize the screen • Design user experiences (UX) with images, sound, touch and vibration

Components and Attributes	Screen1 • Icon: **appicon.png** • ScreenOrientation: **Portrait** VerticalArrangement1 • Width: **Fill parent** • Height: **Fill parent** • AlignHorizontal: **Center** • AlignVerticle: **Center** Canvas1 • BackgroundImage: **Noorse-boskat_wikipedia_1.png** • Width: **300 pixels** • Height: **300 pixels** Player1 • Source: **Meow.ogg**

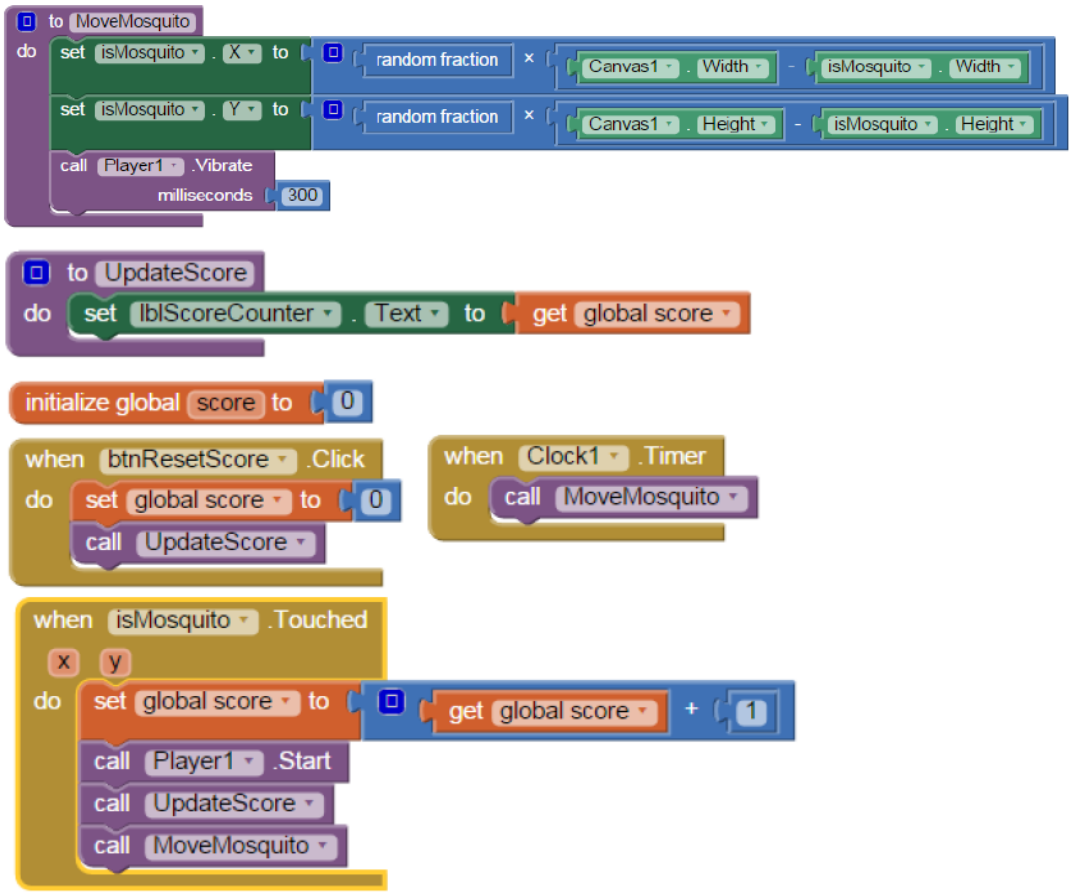
Blocks



Project name (AppName)	**COL_SwatTheMosquito**
App name (Title)	**Swat the Mosquito**
App description (AboutScreen)	This an interactive game. The objective of the game is to swat the mosquito with your finger. The mosquito flies randomly on the screen. The phone vibrates as the mosquito flies. When you swat the mosquito the game will say "HIT" and your score will increase by +1. You can re-set the score to start a new game.
Screenshot	
Expected Learning Outcomes	By the end of this tutorial you should be able to: • Use image sprites • Create and call procedures • Setup and use global variable • Use arithmetic operators • Work with the Clock component

Components and Attributes	Screen1 • Icon: **appicon.png** • ScreenOrientation: **Portrait** Canvas1 • BackgroundImage: **Brown_brick_wall.png** • Width: **Fill parent** • Height: **Fill parent** isMosquito • Picture: **Mosquito.png** • Width: **35 pixels** • Height: **35 pixels** HorizontalArrangement1 • Width: **Fill parent** • AlignHorizontal: **Right** lblScoreTitle • FontBold: **True** • FontSize: **18.0** • Text: **Score :-** lblScoreCounter • FontBold: **True** • FontSize: **18.0** • Text: **0** btnResetScore • BackgrounColor: **Yellow** • FontSize: **18.0** • Shape: rounded • Text: **RESET** Clock1 • TimeInterval: **700** Player1 • Source: **Sv-hit.ogg**

Blocks



By the end of second day, the concepts of image sprites, creation and calling procedures, setting up of global variables, arithmetic operators, logical and control components and tiny database were covered through Apps mentioned above.

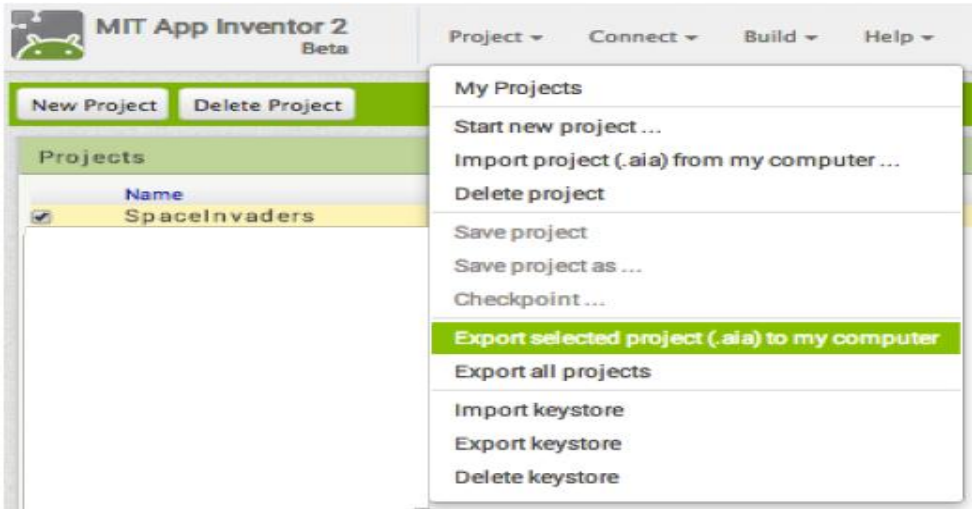
Day 3: 20 March, 2015

Day three started with introducing some advance concepts like Built-in-blocks, functions and variables etc. Dr. Ishan demonstrated on Packaging and distribution and publishing an app on Google play store in the following:

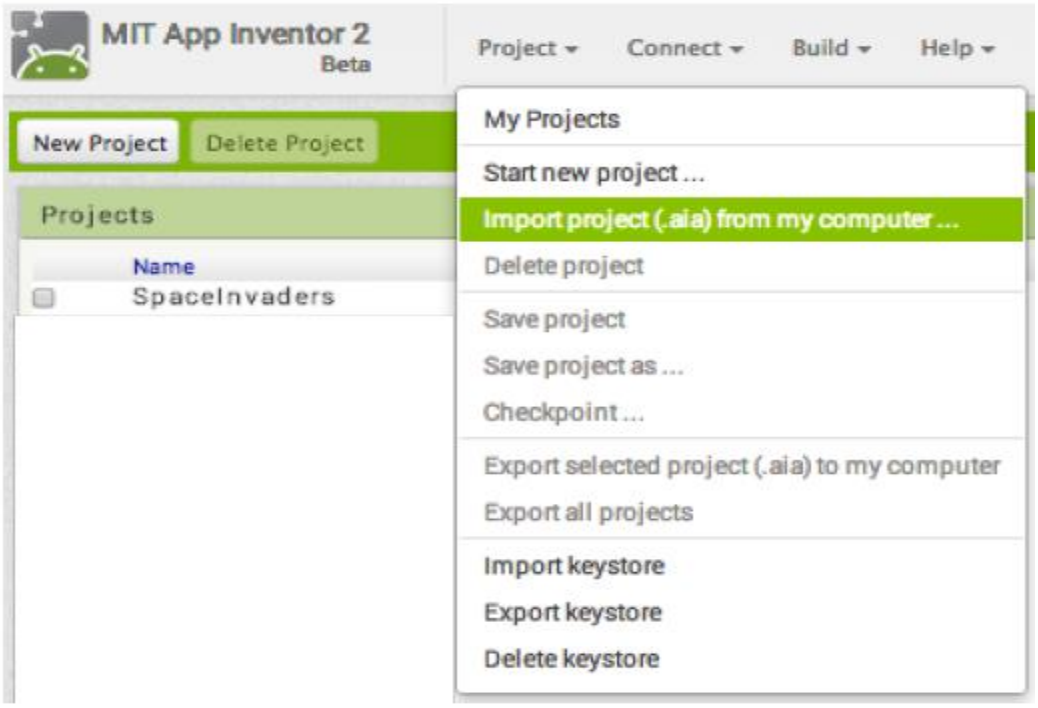
You can share your app in an e xecutable form (.apk) that can be installed on a device, or insource code form (.aia) that can be loaded into App Inventor and remixed. You can also distribute your app on the Google Play Store

Sharing your app so that others can remix (.aia file)

Make sure you are viewing the list of all of your projects (if you are not, choose Projects | My Projects). Select the project you wish to share by checking the box next to it. Choose P roject |Export selected project (.aia) to my computer to export the source code (blocks) for your project. The source code is downloaded in a .aia file.

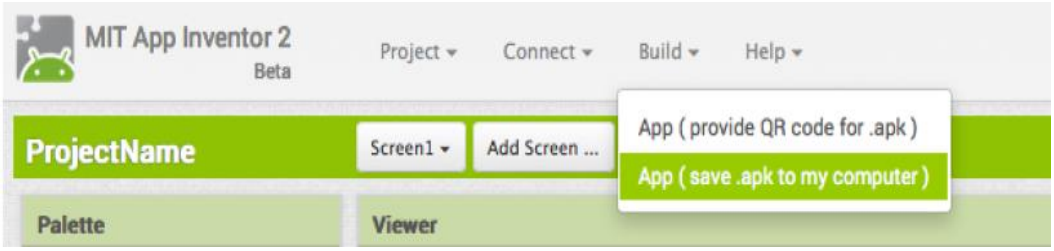


If you send it to a friend, they can open it with Project | Import project (.aia) from my computer.

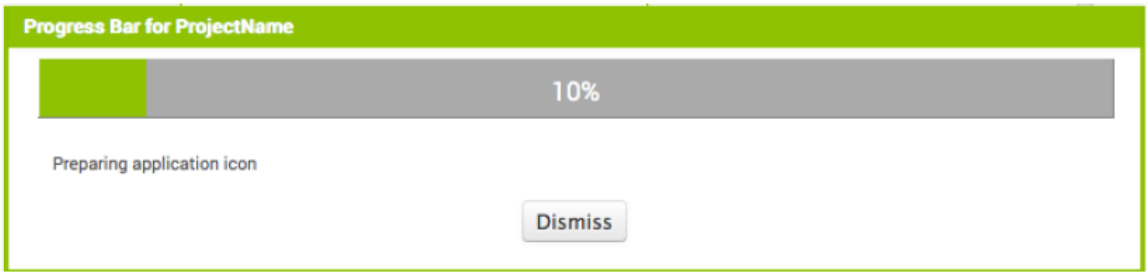


Sharing your app for others to install on their phone/tablet (.apk file)

Package the app (.apk file) by going to the "Build" menu on the App Inventor toolbar.



Select "App (save .apk to my computer)." A popup box should alert you that your download has begun. Note: The other option (provide QR code for .apk) produces a scannable QR code that will download the app for two hours. You can share this code with others, but they have to use it within 2 hours of your generating it.



Once the build completes, you can email the app (".apk" file) to your friends who can install it by opening the email from their phone. If you want to distribute it more widely, you can upload it to a website that both you and your friend can access. You can also distribute your app on the Google Play Store.

Note: Anyone installing your app (which is an ".apk" file) will need to change the setting on their phone to allow installation of nonmarket applications:

To find this setting on versions of Android prior to 4.0, go to "Settings > Applications" and then check the box next to "Unknown Sources". For devices running Android 4.0 or above, go to "Settings > Security" or "Settings > Security & Screen Lock" and then check the box next to "Unknown Sources" and confirm your choice.

Note: The source code (.aia) files are not executable Android programs those are .apk files. The source code is also not Java SDK code it can only be loaded into App Inventor.

On all the three days participants received hands-on-experience to develop educational android mobile apps for teaching and learning.

Valedictory Session

In the valedictory session, certificates were distributed to the participants by Dr. Ramesh Sharma and Principal, Ms. Sneh Verma. Mrs. Rashmi Kathuria, Mathematics Teacher at Kulachi Hansraj Model School was the facilitator at the School.

In the next phase of the workshop, the teachers who got trained in this workshop will conduct another workshop for students in developing educational apps in April 2015. This workshop ignited the curiosity and inspired everyone to keep on Learning.

Annex – 1 Programme Schedule

Venue: KHMS, Delhi, India
Trainer: Ishan Abeywardena, PhD
Prerequisites:
- Each participant **must** have a personal Google/Gmail account
- Android Smart phone or Tablet **(optional)**

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Trainer: Ishan Abeywardena, PhD
Prerequisites:
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TIME	Getting Started with Android App Development
	Day 1 (18th March 2015)
8.30 – 8.45am	**Registration**
8.45 – 9.15am	Breakfast (Getting Connected)
9:00 – 9:30 am	**Inauguration** Prayer, Welcome Address by Ms. Sneh Verma (Principal, KHMS) Address by Dr. Ramesh Sharma (Director, CEMCA), Introduction of workshop (Coordinator, CEMCA), Vote of Thanks (Coordinator, KHMS)
9.30 – 9.45am	Icebreaking
9.45 – 10:00am	Objective and expected outcome of the workshop Learning outcomes of Day 1
10:00 – 10.15am	Introduction to Visual Programming and MIT App Inventor
10.15 – 10.30am	**Creating an App Inventor account**
	Working Tea
10.30 – 11.30am	Device setup for App development and debugging
11.30 – 11.45am	Introduction to the development environment (designer and blocks editor)
11.45 – 12.15pm	Introduction to available modules for App development
12.15 – 1.00pm	Using basic components: 1. `TexttoSpeech` App: *Loud Mouth* 2. `AccelorometerSensor` App: *Shivers* 3. `SpeechRecognizer` App: *Speak to Me*

1.00 – 2.00pm	Lunch break
2.00 – 3.00pm	Using basic components: 4. `Canvas` App: *Scribble* 5. `Ball` App: *Ball Bounce* 6. `Orientation Sensor` and `Clock` App: *Move the Ball* 7. `Camera` App: *Say Cheese!* 8. `Camcoder` and `VideoPlayer` App: *Action Capture*
3.00 – 3.15pm	Tea break
3.15 – 3.45pm	Q&A Session
3.45 – 4.00pm	Recap and wrap-up
TIME	**Intermediate Concepts**
	Day 2 (19th March 2015)
8:30- 9:00am	Breakfast (Knowing each other)
9.00 – 9.15am	Learning outcomes of Day 2
9.15 – 10.00am	Tutorial 1: Pet the Kitty
10.00 – 10.15am	Tea break
10.15 – 11.15am	**Tutorial 2: Crystal Ball**
11.15 – 12.30pm	Tutorial 3: Swat the Mosquito
12.30 – 1.00pm	Q&A session
1.00 – 2.00pm	Lunch Break
2.00 – 3.00pm	Tutorial 4: Virtual Chemistry Experiments
3.00 – 3.15pm	Tea break
3.15 – 3.45pm	Tutorial 4: Virtual Chemistry Experiments *(contd…)*
3.45 – 4.00pm	Recap and wrap-up
TIME	Advanced Concepts
	Day 3 (20th March 2015)
8:30-9:00am	Breakfast (Sharing Ideas)
9.00 – 9.15am	Learning outcomes of Day 3
9.15 – 10.00am	Using advanced concepts: 1. Built-in Blocks 2. Functions 3. Variables 4. Arithmetic and Boolean Algebra 5. Control Structures 6. Exception Handling
10.00 – 10.15am	Tea break
10.15 – 11.15am	Using advanced concepts: 7. Starting Activities

	8. Databases and Storage 9. Connectivity 10. Block Management
11.15 – 12.45pm	Tutorial 5: Tweet my Homework
12.45 – 1.00pm	Packaging and distribution
1.00 – 2.00pm	Lunch Break
2.00 – 3.00pm	Storyboards and prototypes Tutorial 6: Voice Note
3.00 – 3.15pm	Tea break
3.15 – 3.45pm	Publishing Apps on Google Play
3.45 – 4.00pm	Reflections and feedback

Annex – 2 List of Participants

S.No	Name of the Participants	Phone	School Name
1.	Ms. Tarvinder Kaur	09871960712	M. M. Public School, Pitam pura, New Delhi
2.	Ms. Neeraj Kataria	09818771551	DAV Public Primary School, Daryaganj, New Delhi
3.	Ms. Shweta Bhatia	09891321107	DAV Public School ,Pushpanjali Enclave, New Delhi
4.	Mr. Mithilesh Kumar	09818056933	Maharaja Agarsain Public School ,Ashok vihar Ph-IV, New Delhi
5.	Ms. Kamal Johar	07042927749	Maharaja Agrasen Model School, Pitampura, New Delhi
6.	Ms. Rupinder Kaur		Titiksha Public School,Rohini ,sect-11, New Delhi
7.	Ms. Luni Mittal	09871211212	Maharaja Agarsain Public School ,Ashok vihar Ph-IV, New Delhi
8.	Nita Arora	09810369348	Kulachi Hansraj Model School, Ashok Vihar, New Delhi
9.	Ms. Archika Bhatia	09891051059	Kulachi Hansraj Model School, Ashok Vihar, New Delhi
10.	Ms. Neelam Malhotra	08470007027	DLF Public School , Sahibabad, New Delhi
11.	Ms. Geetu Mahendru	09971316576	DLF Public School , Sahibabad, New Delhi
12.	Ms.Vandia Munjal	09811571082	DAV Pushpanjali Enclave Pitam Pura, New Delhi
13.	Ms. Garima Gupta	09811836397	DLDAV Pitam pura, New Delhi
14	Ms. Komal Bhatia	09899624104	DLDAV Pitampura, New Delhi
15.	Ms. Jyoti Sharma		Maharaja Agrasen Model School, Pitampura, New Delhi
16.	Ms. Anju Passi	09873384847	SD Public School,Pitam Pura, New Delhi
17.	Ms. Parul Mehra	09953068820	DAV Public School Vasant Kunj, New Delhi
18.	Ms. Neeraj Punia	09873721954	DAV Public School, Gurgaon,Sector-14, New Delhi
19.	Ms. Sanaya Grover	09711757179	DAV Public School, Ashok Vihar Ph-IV, New Delhi
20.	Ms. VIdushi Garg	09717493490	DAV Public School, Ashok Vihar Ph-IV, New Delhi
21.	Ms. Ritu Jain		DL DAV Shalimar Bagh, New Delhi
22.	Ms. Yashu Kumar	09810207123	Kulachi Hansraj Model School, Ashok Vihar, New Delhi
23.	Ms. Parerna		DAV Public School Shrestha Vihar, New Delhi
24.	Ms. Meena Gulati		DAV Public School Shrestha Vihar, New Delhi
25.	Ms. Rashmi Kathuria		Kulachi Hansraj Model School, Ashok Vihar, New Delhi
		Total participants: 25. Male: 01. Female: 24	